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CONTENTS OF VOLUME V

FEBRUARY, 1936, NUMBER 1

Empyema in Children. J. W. Bodley, M. D., Nashville 1

Conception and the Safe Period. Gilbert F. Douglas, M. D., Birmingham 8

The Diagnosis and Treatment of Surgical Lesions of the Pancreas. Irvin Abell, M. D., Louisville 22

Uretero-Intestinal Anastomosis. L. G. Baggett, M. D., Atlanta 31

Ephriam McDowell. Edward Podolsky, M. D., Brooklyn 42

Jaundice: Diagnosis, Treatment and Prognosis. R. L. Sanders, M. D., Memphis .. 50

Enterostomy. G. A. Hendon, M. D., Louisville 60

Editorials:

- Surgery of the Heart 67
- Still Looking Forward 70
- Doctor Matas 71
- To the Doctors of the Southeastern States 72
- New Orleans Welcomes You 73

Book Reviews 74

Program of the Seventh Annual Assembly 76

Roster of the Southeastern Surgical Congress 79

APRIL, 1936, NUMBER 2

Ocular Manifestations of Intracranial Tumors. Alan C. Woods, M. D., Baltimore. 91

A Secondary Inguinal Hernia with Bilateral Indirect Inguinal Hernia. John Venable, M. D., and Homer Blincoe, M. D., Emory University, Ga. 115

The Surgical Treatment of Duodenal Lesions. J. Shelton Horsley, M. D., Richmond 120

Common Bile Duct Obstructions. J. D. Highsmith, M. D., Fayetteville, N. C. 130

Surgical Measures for the Prevention of Gas Gangrene. Guy A. Caldwell, M. D., Shreveport 141

Edmund Strudwick, Surgeon. Hubert Ashley Royster, M. D., Raleigh 153

Editorial: A Step Forward in the Treatment of Fractures of the Femoral Neck. J. Warren White, M. D., Greenville, S. C. 161

C. Jeff Miller 166

The New Orleans Assembly 171

Book Reviews 177

JUNE, 1936, NUMBER 3

The Occurrence of Convulsions in a Series of Over Seven Hundred Verified Intracranial Tumors. Leonard T. Furlow, M. D., and Ernest Sachs, M. D., St. Louis 179

What Can We Expect from Radical Surgery for Rectal and Rectosigmoidal Cancer. Fred W. Rankin, M. D., Lexington, Ky..... 192

Recent Developments in Surgery of the Sympathetic Nervous System. Paul G. Flothow, M. D., Seattle..... 200

Dyschondroplasia: A Consideration of Osseous Dystrophies. Howard R. Mahorner, M. D., New Orleans..... 209

An Instrument for the Treatment of Trigeminal Neuralgia by Electrocoagulation. H. Hamilton Cooke, M. D., Miami..... 224

Technic for the Injection Treatment of Hernia. Carl O. Rice, M. D., and Lawrence M. Larson, M. D., Minneapolis..... 227

The Use of the Time Factor in Peritonitis. Roger Gamble Doughty, M. D., Columbia, S. C..... 234

Tumors of the Larynx. Francis E. LeJeune, M. D., New Orleans..... 243

Editorial: Suppurative Pericarditis. J. Gaston Gay, M. D., Atlanta..... 248

Book Reviews 251

AUGUST, 1936, NUMBER 4

Passive Vascular Exercises in the Treatment of Obliterative Vascular Disease. O. P. Board, M. D., Birmingham..... 255

Tumors of the Trachea. Chevalier Jackson, M. D., Philadelphia..... 263

Acute Peritonitis: Some Causes and Treatment. A. Street, M. D., Vicksburg..... 277

Surgery in the Treatment of Pulmonary Tuberculosis. Cleveland D. Whelchel, M. D., Gainesville, Ga..... 285

Neoplasms of the Rectum: Incidence, Inter-Relationship and Diagnostic Criteria. Curtice Rosser, M. D., Dallas..... 290

The Therapeusis of Lymphogranuloma Inguinals. Emmerich von Haam, M. D., New Orleans 298

Perforation of a Primary Jejunal Ulcer. D. P. Hall, M. D., Louisville..... 309

Editorial: Principles for the Treatment of Important Fractures. G. A. Hendon, M. D., Louisville 312

Conquest of Pain. C. C. Howard, M. D., Glasgow, Ky..... 315

Executive Council Meets 324

Book Reviews 325

OCTOBER, 1936, NUMBER 5

Surgical Treatment of Encapsulated Intrathoracic Tumors: Report of Two Cases. Julian A. Moore, M. D., Asheville 331

Treatment of Acute Head Injuries. Charles O. Bates, M. D., Greenville, S. C. 343

A New Method and End Results in the Treatment of Carcinoma of the Stomach and Rectum by Surgical Diathermy (Electrical Coagulation). A. A. Strauss, M. D.; S. F. Strauss, M. D., and H. A. Strauss, M. D., Chicago 348

Fractures of the Patella. Richard T. Hudson, M. D., Louisville 360

The Results of Superior Cervical Sympathectomy in Angina Pectoris. Harry Hyland Kerr, M. D., Washington, D. C. 365

Allergic Reaction Following Transfusion: Report of a Fatal Case. J. Duffy Hancock, M. D., Louisville 373

Riedel's Thyroiditis: A Suggestion as to Etiology and Surgical Management. R. B. McKnight, M. D., Charlotte 375

Lesions of the Breast. J. W. Tankersley, M. D., Greensboro, N. C. 384

Complications and End Results Associated with Injection Treatment for Hernia. Carl O. Rice, M. D., and Lawrence M. Larson, M. D., Minneapolis 390

Editorials:

The C. Jeff Miller Lecture. Fred W. Rankin, M. D., Lexington, Ky. 401

A-15 403

Book Reviews 404

DECEMBER, 1936, NUMBER 6

Acute Metastatic Brain Abscess. Joseph E. J. King, M. D., New York 407

Retrodisplacements of the Uterus. Wm. T. Black, M. D., Memphis 438

The Relationship of Calcified Mesenteric Glands to Abdominal Pain. Arthur W. Allen, M. D., and Henry F. Howe, M. D., Boston 447

Deep Cervical Abscess Simulating Ludwig's Angina. Harold A. Goldberger, M. D., New York 463

Mayo Vaginal Hysterectomy for Uterine Prolapse and Cystocele: Indications and Technic. Virgil S. Counseller, M. D., Rochester, Minn. 467

Editorials:

Bronchiogenic Carcinoma 479

Exhibits 481

The Army Medical Library and its Index-Catalogue 482

Book Reviews 483

Index 487

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The
Southern Surgeon

VOLUME V FEBRUARY, 1936 NUMBER 1

EMPYEMA IN CHILDREN

J. W. BODLEY, M. D., F. A. C. S.
Memphis, Tenn.

EMPYEMA in children is potentially the same condition as empyema in adults, but children do not respond as well to the usual treatment as do their elders, the mortality rate mounting rapidly the younger the child.

During the World War it was noted in the military hospitals that those cases treated by aspiration alone or other so-called closed methods of treatment, did much better than the ones treated by the open methods as, for example, rib resection.

My own observations have led me to the following conclusions:

1. That all cases of acute empyema do better when treated by some closed method.

2. That children not only do better by the closed methods, but unless decompressed slowly are apt to go into shock due to shifting of the mediastinal contents.

3. That aspiration alone, whether daily or by the withdrawal of all pus and replacement by air at intervals as advocated by Dana of New Orleans, does not cause a cure in children as it does in adults.

From these, our so-called closed-open method or silver tube method evolved itself.

The procedure is as follows:

Aspiration is done with a large bore needle attached to a 50 c.c. Luer syringe by a short piece of small rubber tubing.

From the Department of Surgery, University of Tennessee, School of Medicine
Read before the Sixth Annual Assembly of the Southeastern Surgical Congress, in Jacksonville, March 11, 12 and 13, 1935.

Fifty cubic centimeters of pus are drawn off and an equal amount of air is replaced. This is repeated until all of pus or as much as possible has been removed.

X-ray pictures taken in the upright position after aspiration show the condition of the chest and the position of the heart, lungs and trachea.

If the entire amount of pus has not been removed, the air injected shows at the upper part of the cavity as a clear area

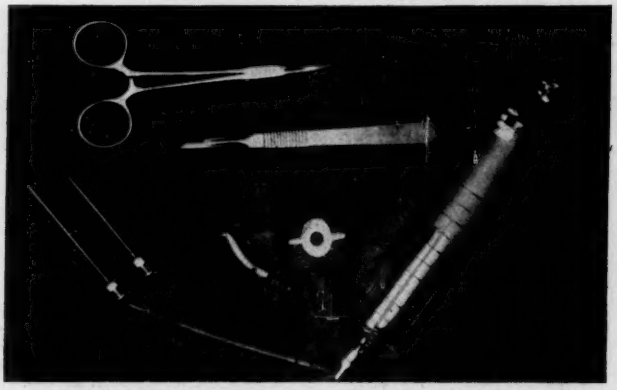


FIG. 1. (1) Small hemostat. (2) Bard-Parker knife with No. 15 blade. (3) Silver tracheotomy tube cut off and fenestrated. (4) Flanged end flattened out. (15) Large bore needles. (6) Rubber tube for use in aspiration. (7) 50 c.c. syringe.

acting as a guide as to the necessity of further aspiration and as to the return of the mediastinal contents toward the normal position.

The periodic withdrawal of pus is continued to relieve pressure and to lessen absorption until complete abscess formation has taken place and repair has begun. This may usually be determined by the character of the pus, which is creamy or pea-soup in consistency. In those cases caused by the streptococcus hemolyticus, the exudate is thinner than in the cases due to the pneumococcus or staphylococcus and allowances must be made.

When abscess formation is complete, there is far less chance of further collapse of the lung or of shifting of thoracic contents toward the unaffected side, thereby materially lessening any possible shock.

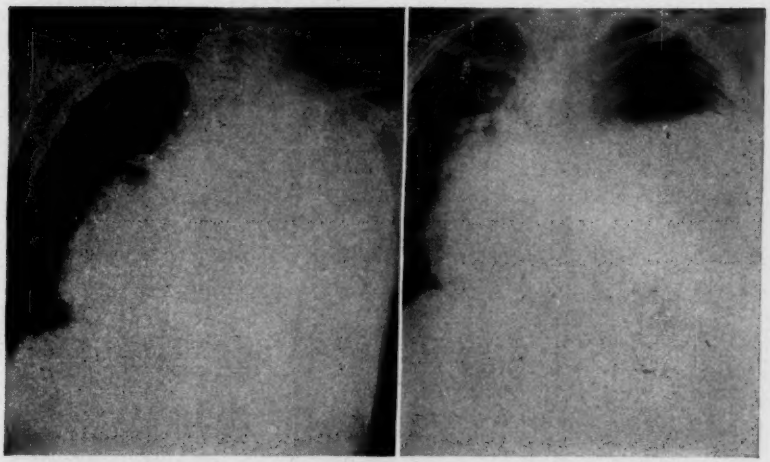


FIG. 2. X-ray showing empyema of the left chest with heart and trachea displayed to the right.
This and the other roentgenograms are from Case 2.
FIG. 3. Plate after the first aspiration. Air in the upper chest.

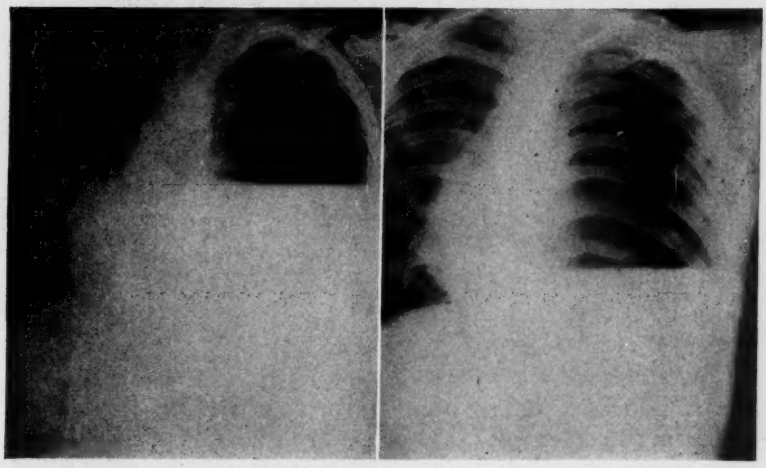


FIG. 4. Chest after the second aspiration.
FIG. 5. Chest after the third aspiration. Very little pus remains.

When this stage has been reached, our actual operation may be done. Under local anesthetic with a No. 15 bladed Bard Parker knife a 0.5 cm. incision is made in the seventh or eighth intercostal space in the anterior or mid-axillary line at the de-

pendent portion of the abscess cavity. The thickened pleura is nicked and with a pointed hemostat the opening is quickly enlarged and the silver tube is inserted; the thumb blocks the external opening, preventing the escape of pus or admission of air. The tube is now sealed with broad strips of adhesive

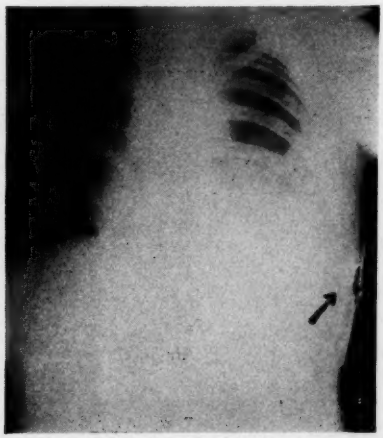


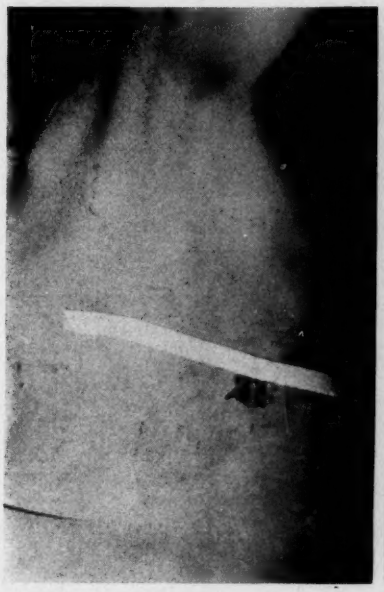
FIG. 6. Chest showing silver tube in place. The heart and trachea are in their normal positions. The left lung is expanding.

which act as a ball valve, allowing a slow decompression as the pus oozes out under the plaster which prevents air from getting in. The slow decompression is on the same principle as that of the urinary bladder and is most important. If carried out properly there is no shock. Over the adhesive a five-yard roll is wound as a dressing. This holds the plaster firmly in place.

The silver tube is a cut off No. 2 silver tracheotomy tube from 2.5 to 4 cm. long with a lateral fenestration—the flanged end being flattened out.

After the tube has been inserted and sealed it is allowed to remain in place undisturbed for four days, the outer dressing, the five-yard roll, being changed as necessary for cleanliness. At the end of this time, the decompression being complete, the adhesive may be removed with safety, care being taken that the tube does not slip out. It is now fastened in place with strips of adhesive 0.5 cm. wide, a No. 12 French

catheter is inserted through the silver tube and two or three cubic centimeters of Dakin's solution instilled into the abscess cavity. If the patient coughs there is a bronchial fistula. The catheter should be removed and ordinary dressings applied until the fistula heals. If there is no cough, the catheter is fastened in place with narrow strips of adhesive and dressed with the open end of the catheter exposed. Five cubic cen-



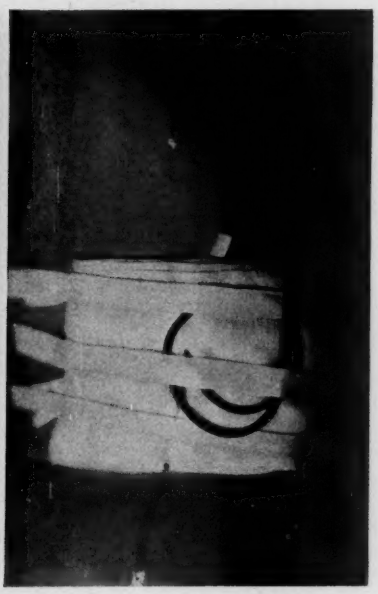


FIG. 7. Silver tube in chest and held in place by narrow strip of adhesive.
FIG. 8. No. 12 French catheter inserted and chest dressed with the open end of catheter exposed.

timeters of Dakin's solution are instilled through the catheter every hour during the day and three times at night. Each day the chest is irrigated through the tube with Dakin's, the space between the catheter and the tube allowing the solution to escape. The catheter may be replaced at any time if soiled or stopped up.

The character of the pus soon changes, first becoming thinner, then mucilaginous and clear, resembling tapioca pudding. The hourly instillations may now be stopped, but the daily irrigations continued to keep the tube open and the cavity clean.

Frequent x-ray pictures are made to check the size of the cavity which usually shows a rapid diminution. When about 1 cm. in breadth the silver tube is removed and the external opening allowed to close, which it does in twenty-four to forty-eight hours.

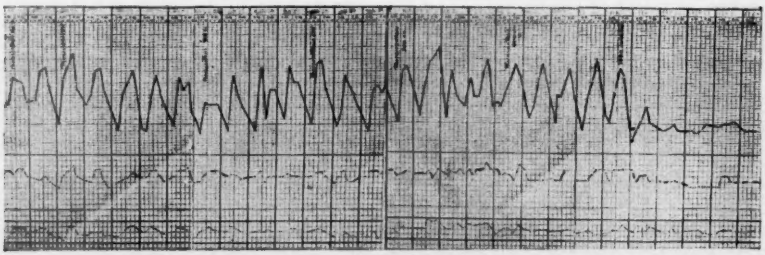


FIG. 9. Graphic chart in Case 1, showing improvement on aspiration and drop to normal temperature on insertion of the silver tube.

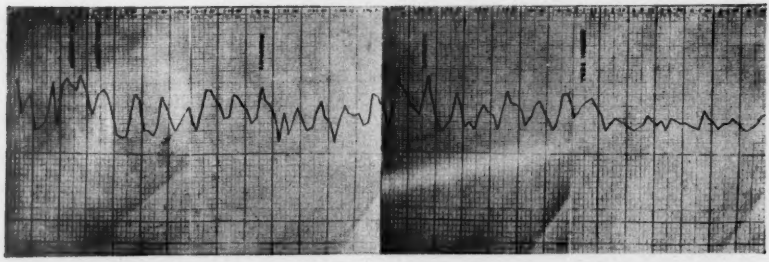


FIG. 10. Graphic chart in Case 2, also showing improvement on aspiration and drop to normal temperature on insertion of the silver tube.

If old enough, the patient should be made to blow bottles, balloons, etc., as much as possible during the entire time that tube is in the chest. The average time that it remained was three weeks.

Of our completed series of 100 cases, three died. One six weeks old, suffocated, in an oxygen tent, by a plug of mucus in trachea; one fifteen months old, contracted pneumonia in all three lobes on the opposite side fifteen days after tube was inserted, and the third died of nephritis that developed following diphtheria. In figuring a true mortality, all deaths should be included. These three deaths leave us with an extremely low rate, it being 3 per cent. At the present time there are nine cases under treatment.

If the following rules are strictly adhered to, the mortality rate should remain as low or possibly even lower.

1. Aspiration to decompress and carry along.
2. Complete abscess formation before operation.
3. Slow decompression after the insertion of the tube.

The advantages of our method are:

1. It is rational.
2. It is simple.
3. There is no deforming operation.
4. The patient is able to be out of bed two to five days after tube is inserted.
5. Recovery is rapid.
6. The mortality is exceptionally low.

Numerous statistics reported show mortality rate as high as 80 per cent in the first year and the average low for all children about 20 per cent.

SILVER TUBE METHOD

Years Old	Number of Cases	Recovered	Died	Mortality
First	9	8	1	11.1%
Second	22	21	1	4.5%
Over two	69	68	1	1.4%
Total	100	97	3	3%

We do not claim any new or revolutionary treatment but only a combination of fundamental recognized principles that are simple and give unusual results.

CONCEPTION AND THE SAFE PERIOD

GILBERT F. DOUGLAS, M. D., F. A. C. S.
Birmingham

THE religious ban against contraceptives has been a potent factor in stimulating interest to determine some natural means of contraception rather than the forbidden, artificial—chemical or mechanical—methods. Consequently, it is always advisable to consider this subject primarily from a biologic viewpoint.

There is a "safe period." To determine this period, the exact time of ovulation must be known, and the biologic facts that ovulation determines the date of menstruation, and these physiologic phenomena are not coincidental must be appreciated, for upon these facts is based the idea that there is a "safe period." To establish the time of this period in the menstrual cycle it is necessary to work out with each individual woman the date of her ovulation. This can be easily done if she will keep an accurate record of her menstrual periods, and, as ovulation varies somewhat in each cycle, such a record should be kept for at least twelve months, so that an average can be determined and advice given with the greatest degree of accuracy and safety. Patients properly instructed can soon learn to tell in practically every cycle the date on which ovulation occurs.

PHYSIOLOGY OF OVULATION AND RELATED EVENTS OF THE MENSTRUAL CYCLE

Ogino says: "The peak of ovulation determines the time of the following menstrual period and has no connection with the preceding one." Knaus has shown that the unmated egg cell retains germinating ability only about twenty-four hours after it leaves the ovary.

The work of Aschheim and Zondek has shown that the hormones play a prominent role in pregnancy. These hormones are derived from the ovary and the pituitary gland, and bear a direct relationship to ovulation, fecundation and

Read before the Sixth Annual Assembly of The Southeastern Surgical Congress, in Jacksonville, March 11, 12 and 13, 1935.

menstruation. There are seven distinct hormonal effects from the pituitary and two from the ovaries. From the anterior lobe of the pituitary: (1) Ripening of the graafian follicle with the production of folliculin and egg cell. (2) Growth of the corpus luteum after ovulation. (3) Hypertrophy of the mammary glands in conjunction with the influence exerted by the corpus luteum. From the posterior lobe: (4) Uterine stimulation. (5) Expansion of melanophores. (6) Antidiuresis or water retention. (7) Increased blood pressure. From the ovaries are: (1) Folliculin which causes hyperemia of the uterus and tubes in preparation for the ovum. (2) Corpus luteum producing further growth of the uterus and hypertrophy of the mammary glands.

Ogino, studying coitus in relation to ovulation and fecundation, concluded: (1) Women with regularly menstruating cycles of 28 days have an eight-day period in which the sperm cell is able to impregnate the ovum. This period lies between the twelfth and nineteenth days before the next menstruation, or between the tenth and seventeenth days after menstruation has started; the other days in the cycle are physiologically sterile. (2) If the cycle is longer or shorter than 28 days the period of conception is moved so many days ahead or behind.

Knaus of Austria, working independently, arrived at similar conclusions, but elaborated them more fully as follows: In women with a regular menstrual cycle of 26 days, conception possibilities are limited to the time from the ninth to the thirteenth days inclusive before the next menstruation; in a cycle of 27 days, conception possibilities are limited from the tenth to the fourteenth days inclusive; in a 28 day cycle, eleventh to fifteenth days; 30 day cycle, thirteenth to seventeenth days; 34 day cycle, seventeenth to twenty-first days; in a cycle varying 28 to 30 days, eleventh to nineteenth days, with a maximum of 14 to 16 days; and a cycle varying 26 to 30 days, ninth to seventeenth days inclusive.

Ogino established the time of ovulation in an empirical manner during the course of laparotomies on women. He found a five day ovulation period in a constant menstrual cycle. Knaus determined the time of ovulation by measuring uterine contractions with a manometer. He claims a two day ovulation period in a constant menstrual cycle.

The anterior pituitary lobe secretion motivates the ovary. The corpus luteum inhibits the posterior lobe secretion and maintains pregnancy. When the corpus luteum withers, and it does if the egg cell is not fertilized, the oxytoxic principle of the posterior lobe secretion asserts itself and menstruation is brought about. Miller concluded: (1) The hormones play a major role in pregnancy. (2) The sperm and egg cells detached from their respective breeding places have a very limited time to live. For the egg cell it is not longer than a day; and the sperm cell lives only two to three days. (3) Every normal, regularly menstruating woman has a definite ovulation period and definite periods of physiologic sterility and fertility in each cycle. (4) Cohabitation must be properly timed with ovulation if pregnancy is to result. (5) Pregnancy may be brought about or avoided at will by the observation of these periods of time.

In Novak's study of sterility and fertility, he advances the theory that there is an anovulatory menstruation as a cause of sterility, that is, the ovary fails to extrude the ovum from its surface. He also has shown there is a way of determining whether or not a sterile woman is ovulating. By studying the endometrium just before an expected menstrual flow, assuming the menstrual periods are regular, if ovulation has occurred the endometrium will show the secretory changes evoked by the corpus luteum hormone (progestin). If, on the other hand, there is a complete absence of such secretory changes in the endometrium, it may be assumed that there is no corpus luteum and ovulation has not occurred. The tissue for examination can be obtained by using a very small curet or by suction as suggested by Klinger and Burch.

Knaus states that the ovum cannot be impregnated after a few hours, as it then develops an albuminous membrane which prevents entrance of the spermatozoon.

Ogino and Knaus agree that if the ovum is not fertilized within a few hours after ovulation, menstruation will occur not sooner than 12 nor later than 16 days afterward, and that it will follow regularly in 13 to 14 days in most cases. Based on their opinions, it may be concluded the time of conception is usually the week which falls between the twelfth and nineteenth days before the following menses (this allows five days

ovulation period and the three preceding days), conception is rarely possible between the twentieth and twenty-fourth days before menstruation is expected (except in those unusual cases where spermatozoa remain viable for a longer time than usual), and it is impossible during the 11 days before the menses are due.

The two clinical signs of ovulation recognized by gynecologists are intermenstrual pain or "Mittelschmerz," and intermenstrual spotting. The former is probably due to the greatest distention of the follicle just preceding rupture. It may be perfectly regular, occurring on one side one month and on the opposite side the next. Only one side may be involved, distention of the ovary on the opposite side causing no pain at all. Intermenstrual spotting occurs infrequently. It may last from one hour to two days with slight to moderate bleeding.

As a third indication to the time of ovulation, Kurzrok adds the sudden appearance of the follicle stimulating hormone (prolan-A) in the urine of normal, non-pregnant women. He tested the urine in a series of cases and found those positive (prolan-A) corresponding to ovulation time.

It has been demonstrated that the stimulus for ovulation proceeds from the anterior pituitary gland, the site of elaboration of prolan-A. Its sudden appearance in the urine for a short period denotes a sudden activity of this gland; but whether or not ovulation actually takes place depends on a normal or pathologic ovary. The time between the sudden elaboration of prolan-A and actual ovulation is of interest. Kurzrok assumes ovulation follows prolan-A excretion in 24 hours.

In his cases the interval between the appearance of a positive prolan-A and a positive Aschheim-Zondek test was 13 and 10 days, respectively. The appearance of a positive Aschheim-Zondek test in all likelihood denotes nidation of the ovum. These intervals cover a period of fertilization, migration of the fertilized ovum through the tube and uterus and nidation. The time occupied by these processes is considered by embryologists to be 10 days. This, therefore, would bring the appearance of prolan-A and ovulation very close together.

Burns' classification of the natural or physiologic phases which occur in both the menstrual and pregnancy cycles of mammals is familiar:

1. Follicular phase.
2. Ovulation phase.
3. Luteal phase.
4. Degenerative phase.
5. Quiescent phase.

Quoting from Anderson: "It is easy to remember these phases by the initial letters F, O, L, D, and X, charted graphically. These phases normally follow each other in the 28 day cycle in rhythmic succession:

F-O-L-D-F-O-L-D

"In the 21 day type instead of a shortening of each phase in order that each would occur within the 21 days, there is an overlapping so that the follicular phase and the menstrual phase are occurring at the same time:

F-O-L-D
F-O-L-D
F-O-L-D

"In the 14 day type there is so much overlapping that one ovario-uterine cycle is only half complete when the next begins and ovulation and menstruation are taking place simultaneously:

F-O-L-D
F-O-L-D
F-O-L-D

"In the menstrual cycles longer than 28 days the X or quiescent phase occupies a space between cycles, corresponding to the milk phase following pregnancy:

F-O-L-D-X-F-O-L-D."

Knaus has repeatedly stated that "irrespective of the length of cycle, ovulation always takes place about 14 days before the oncoming menstruation."

If all the cycles were regular there would be no failures of the method, as it has been shown that for impregnation to take place there must first be fertilization of the ovum and then nidation, and for nidation to take place there must be preparation of endometrium, first by follicular hormone stimulation and later by luteal hormone stimulation, to produce the so-called pregravid endometrium.

It is remarkable to find with what regularity the processes of ovulation and menstruation occur, governed as they are by the hormones of the pituitary which is "the motor of ovarian function." Nervousness and emotional conditions alter the period of menstruation and in all probability the date of ovulation.

Does pregnancy begin with fertilization or nidation? It appears that pregnancy does begin with fertilization and that all pregnancies at first are tubal pregnancies. Any method to prevent nidation in reality amounts to an abortion.

Instruction of the Patient and Symptoms of Ovulation

Ovulation time tables have been improvised, but it is not sufficient to give one to a patient and tell her to use it without further instructions.

1. Take a careful history of her menstrual cycle, especially noting any irregularities.

2. Emphasize the importance of keeping an accurate record of menstruation so that the individual cycle may be determined.

3. Explain the physiology of ovulation and describe the symptoms. They are not unlike the discomfort arising from gas in the intestines. A mild cramp-like pain comes on suddenly and is followed by a bearing down sensation and a feeling as if the bottom of the pelvis were falling out. The discomfort is frequently felt at first rather high in the abdomen about the level of the umbilicus on the side of the ovulating ovary. It is unlike any other type of pain; mild, but an unmistakable sign when once recognized. A bearing down sensation leads some women to believe they are going to menstruate in the middle of the month.

Many women show a variance in the severity of symptoms from month to month. Occasionally, when the symptoms are severe, the multiparous woman tells of "feeling much like the first time she sat on a toilet after her babies were born." Some women experience a mild headache, others soreness in the breasts, and many say there is a slight increase in the vaginal secretions. Frequently a woman will realize the process has been completed when she passes a plug of mucus a day or two later, and she is able to predict the time of the oncoming menstruation from the time of passing this plug. In a very few cases there is slight bleeding.

4. Remembering that ovulation may occur a few days earlier or later than on the exact day indicated by the cycle card, the physician should outline or check about five days (two days before and three days after the expected time for ovulation) and request the patient to keep a written record of every symptom occurring during these days, regardless of whether or not she thinks it has any bearing on the problem.

5. The patient should keep in her own code a record of all events pertaining to the cycle. The following code is suggested:

X The number of days of menstruation
. Dates of intercourse
0′ Suspected ovulation in right ovary
′0 Suspected ovulation in left ovary
— Passing of mucous plug

6. It is advisable to have the patient return for several months for instructions.

The patient should be made to understand that the "Ovulation Time Table" is a device to be used under the physician's direction. If properly used the percentage of failures will be low. The Ovulation Time Table as used by Anderson consists of two parts. A date card and an indicator or cycle card. All date cards are provided for 21-24-26-28- and 30 day average cycles. These should be described as follows:

21 day cycle card for cycles varying from 19 to 23 days.
24 day cycle card for cycles varying from 22 to 26 days.
26 day cycle card for cycles varying from 24 to 28 days.

28 day cycle card for cycles varying from 26 to 31 days.
30 day cycle card for cycles varying from 29 to 33 days.

If the patient can learn to recognize her ovulation period she can determine exactly the date of the onset of her next menstruation. Then she will know (a) the human conception period lies in the 8 day period from the twelfth to the nineteenth day before the subsequent menses, notwithstanding the length of the menstrual periodicity; (b) the period of 11 days from the first to the eleventh day before the subsequent menses is the fertility phase; (c) the period preceding the twentieth day before the succeeding menses, that is to say, the period from the beginning of the last menses to the twentieth day before the next coming menses is the sterility phase, if we disregard the exceptional cases.

Results and Sociologic Value of the Method

The idea of a "safe period" dates back to Mosaic Law, which, through the establishment of ritual cleansing for woman, definitely indicated the period during which the women were most likely to conceive.

It is a religious tenet among the Orthodox Jews that a woman is unclean for fourteen days after the beginning of her period, and it is unlawful to have sexual relations during this time (Leviticus xvi 28). The resumption of relations occurs about the time of ovulation, and to this fact is ascribed the prolific character of the Jewish race.

On the other hand, in the German Army, husbands were granted furloughs 20 days after the beginning of their wife's period, or 8 to 10 days before the next period was due. Only one pregnancy resulted after 400 such furloughs!

This new theory is practical in that people desiring children can regulate their sexual activities to the fertile period when conception is likely, and those whose religious convictions prevent the use of contraceptives can limit their activities to the sterile periods. There is no religious sect which teaches the size of a family must not be regulated by abstinence from sexual relations during any part of the menstrual cycle. Also, those who have no religious scruples against contraceptives, but are averse to using them, can determine the time in the cycle when contraceptives are unnecessary.

Enough evidence has already accumulated to indicate that a strict observance of the method means an insurance of sterility exceeding that associated with the employment of contraceptive apparatus and medicaments. Latz received only one complaint against the method out of every 4000 books sold. Smulders in Holland has made available records of many thousands of cases of successful practice of this method of birth control. In 100 cases under observation Anderson found only three failures that might be charged against it.

Miller, Schultz and Anderson made observation on 87 apparently normal couples of 8 nationalities and 12 different menstrual cycles. Where pregnancy was suspected it was checked by the modified Aschheim-Zondek test on rabbits. In 725 cohabitations just before and after menstruation, none resulted in pregnancy!

There are many methods of determining the fertile, as well as the sterile or "safe period." Culligan has developed a slide rule which indicates when conception is probable, possible or impossible. His observations shows 95 per cent accuracy in his patients who have used this rule for over six months; whereas the Birth Control Research Bureau of New York in a test of more than 100 so-called contraceptives found 45 to be unreliable.

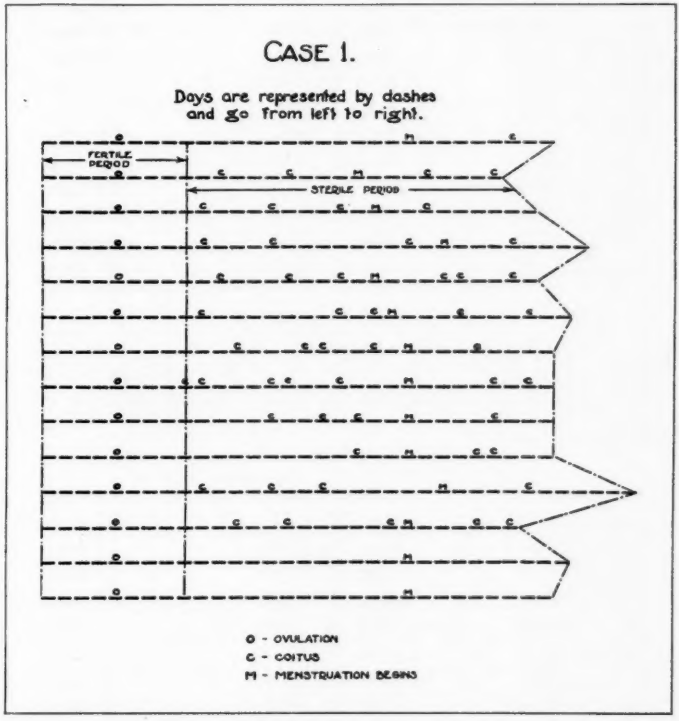
Sociologically the determination of the exact "safe period" would solve the contraceptive problem for many, and thus remove from the technic of contraception many of its objectionable features. It is advisable for the family physician to acquaint himself with the details so as to assist each individual patient to work out her period.

Illustrative Case Reports

Case 1. A young married woman, whose interest in the sciences has persisted since her college days, heard there was such a thing as a "safe period." Uninstructed, she worked out her ovulation time, made graphs of different events, and arrived at what she thought was her "safe period." She stated:

"I have been able to determine the time of ovulation every month since November, 1933. The pain and sensation is different from any other feeling, but once discovered, I do not believe any woman can mistake it. It begins suddenly and

unexpectedly, usually as I make a move, either to sit or rise, when it feels like everything in me is bearing down or coming out. There is usually one hard pain that seems to originate low in the front and ends up toward the back, apparently in the colon. This is followed by milder pelvic pains fading out in slight cramps and finally in a 'dull-feeling.' In about an hour it is over. It is similar to the discomfort I have short-



ly before the flow of each menstrual period. There is present also a dull headache, dizziness and drowsiness which lasts about an hour. It is the same let-down feeling one has during the first hours of menstruation.

"The time of ovulation is very easy to distinguish from other pains, such as gas or indigestion, since it comes on suddenly when I am feeling good and have not even thought of ovulation.

"Sometimes I can tell definitely which ovary is functioning. Often a day or two after ovulation I feel something just over my ovary, or directly across from my navel, which seems to be 'turning flips' inside me. The regularity of this sensation makes it very noticeable. As far as I have been able to determine this feeling is always on the side I think is ovulating."

Menstruation	Ovulation	Interval
Dec. 22, 1933	Jan. 4, 1934	13 days
Jan. 19, 1934	Feb. 1, 1934	13 days
Feb. 16, 1934	Mar. 2, 1934	14 days
Mar. 21, 1934	Apr. 3, 1934	13 days
April 19, 1934	May 2, 1934	14 days
May 18, 1934	June 2, 1934	15 days
June 19, 1934	July 4, 1934	15 days
July 21, 1934	Aug. 3, 1934	13 days
Aug. 20, 1934	Sept. 20, 1934	13 days
Sept. 19, 1934	Oct. 2, 1934	13 days
Oct. 22, 1934	Nov. 5, 1934	14 days
Nov. 22, 1934	Dec. 3, 1934	11 days

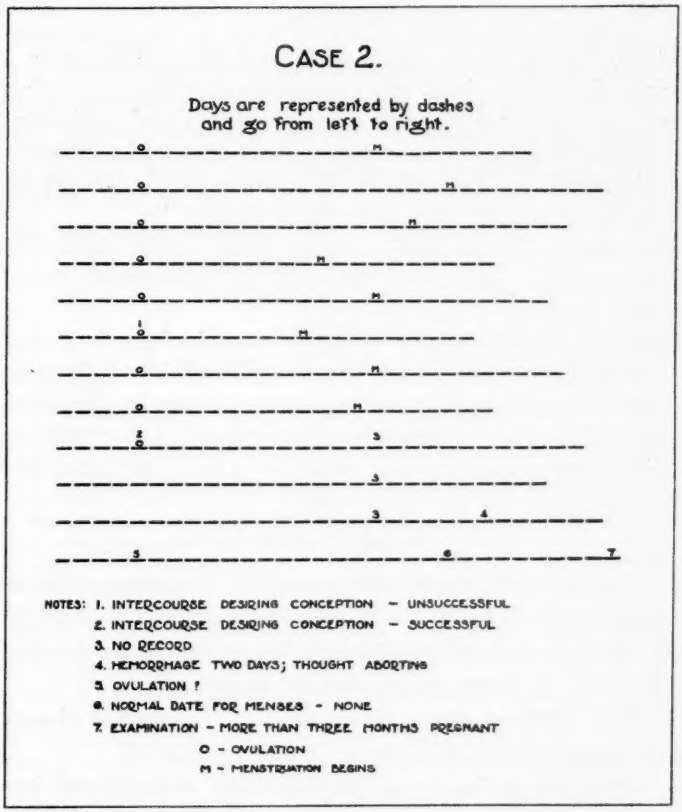
TABLE 1, CASE 1.

Table No. 1 shows that ovulation in this case occurred from the eleventh to the fifteenth day after the beginning of menstruation.

Ovulation	Menstruation	Interval
Jan. 4, 1934	Jan. 19, 1934	15 days
Feb. 1, 1934	Feb. 16, 1934	15 days
Mar. 2, 1934	Mar. 21, 1934	19 days
Apr. 3, 1934	Apr. 18, 1934	15 days
May 2, 1934	May 18, 1934	16 days
June 2, 1934	June 19, 1934	17 days
July 4, 1934	July 21, 1934	17 days
Aug. 3, 1934	Aug. 20, 1934	17 days
Sept. 2, 1934	Sept. 19, 1934	17 days
Oct. 2, 1934	Oct. 21, 1934	19 days
Nov. 5, 1934	Nov. 22, 1934	17 days
Dec. 3, 1934	Dec. 20, 1934	17 days

TABLE 2, CASE 1.

Table No. 2 shows that ovulation occurred from fifteen to nineteen days before the beginning of menstruation, usually seventeen days.


CASE 2.
Days are represented by dashes
and go from left to right.
NOTES: 1. INTERCOURSE DESIRING CONCEPTION - UNSUCCESSFUL
2. INTERCOURSE DESIRING CONCEPTION - SUCCESSFUL
3. NO RECORD
4. HEMORRHAGE TWO DAYS; THOUGHT ABORTING
5. OVULATION ?
6. NORMAL DATE FOR MENSES - NONE
7. EXAMINATION - MORE THAN THREE MONTHS PREGNANT
O - OVULATION
M - MENSTRUATION BEGINS

CASE 2. This woman, also uninstructed, discovered her date of ovulation to be March 5, 1934, and monthly thereafter. In July she ovulated at 9 a. m. and had intercourse at 10 p. m. (13 hours after ovulation). She desired conception to take place but she did not conceive. Ovulation was noticed October 1. Cohabitation without contraceptives followed shortly after. Ovulation and menstruation did not occur in November, but on December 13 she had a profuse flow which lasted two days. Neither ovulation nor menstruation occurred in January. When examined January 19, the uterus was enlarged to about the size of a three and one-half months' pregnancy.

Discussion

The evidence from observation and the literature is convincing that there is a fairly well fixed time of ovulation, which can be relied upon with only a few days' variance and that ovulation determines menstruation rather than menstruation determining ovulation. The time of ovulation being determined, we can rely on a "safe period."

The dates, 12th to 19th, in most cases can be declared the fertile period. All other dates of the menstrual cycle are infertile, sterile or "safe periods."

With the establishment of these biologic facts it is incumbent upon physicians to act as scientific advisers, disseminating such valuable information, rather than let commercial houses and various lay organizations who advertise their wares for their own publicity and financial gain usurp the field.

Conclusions

1. To ascertain the "safe period" it is necessary to study the menstrual cycles of each individual six to twelve months.
2. The period of viability of the ovum is, as a rule, not longer than 24 hours after leaving the ovary.
3. The ability of the spermatozoon to fertilize the ovum is not longer than 2 to 3 days.
4. Ovulation time can be definitely determined by the regularly menstruating patient through proper study and instructions from the informed physician.
5. Ovulation determines the time of menstruation instead of menstruation determining that of ovulation.
6. When the ovulation time is found the patient can tell when her next menstruation will begin.
7. In a regular 28 to 30 day menstrual cycle ovulation takes place, as a rule, 12 to 16 days before onset of next menstrual period.
8. Hormone secretions play a prominent role in pregnancy, those derived from the pituitary and ovary bear a direct relationship to ovulation, fecundation and menstruation.
9. Menstruation follows the death or absence of fertilization of the ovum.

10. The scientific use of this new theory is more successful than the usual contraceptives; it does not wound the feelings of those whose church canons forbid the use of contraceptives, or whose aesthetic senses rebel against them.

11. For the average 28 to 30 day menstrual cycle, the "safe period" would well be covered by abstinence from cohabitation during the 12th to 19th day before the beginning of the next menstruation.

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THE DIAGNOSIS AND TREATMENT OF SURGICAL LESIONS OF THE PANCREAS

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WITHIN the time limit imposed by the program it is obvious that only the most important phases of the surgical lesions of the pancreas can be considered. Injuries, acute and chronic pancreatitis, cysts and tumors, inclusive of adenoma with hyperinsulinism, constitute the group in which the application of surgical treatment offers the hope of palliative relief or cure.

The injuries of the pancreas may be subcutaneous and percutaneous; the situation of the organ renders both types relatively rare, while the danger in both lies in hemorrhage and in the activation of trypsinogen with a resulting pancreatic necrosis from autolysis. In the subcutaneous type the diagnosis is rarely possible except upon the operating table; the presence of severe epigastric pain, dyspnea, nausea and vomiting with epigastric tenderness and rigidity following a serious injury is universally recognized as urgently indicating exploration, when the injury to the organ will be apparent. The indications are to control hemorrhage, prevent leakage of pancreatic juice into the peritoneal cavity, and to provide drainage. In penetrating wounds of the abdomen the common practice of exploration will again be the means of recognizing injury of the organ and the application of appropriate treatment.

Unfortunately there are, as a rule, associated injuries of adjacent viscera, a combination which results in a high mortality. In the two instances of perforating wounds of the abdomen with pancreatic injury which have come under my observation such a combination existed with a fatal issue in both. Comparatively mild injuries, unrecognized and consequently not subjected to operation, may give rise to cyst formation in the pancreas or to the development of a pseudocyst, the accumulation being in the lesser peritoneal cavity.

Read before the Inter-State Post-Graduate Medical Assembly, in Detroit, Oct. 14-18, 1935.

In all injuries fibrosis with subsequent interference in pancreatic function may be a late result.

Pancreatitis is commonly divided into two clinical groups: the acute and chronic. The acute group comprises pancreatic edema, pancreatic necrosis, hemorrhagic pancreatitis and pancreatic abscess. In the light of our present knowledge all depend upon the same etiologic factors and but represent varying degrees of intensity of the same underlying pathologic phenomena. The most logical explanation for its origination, both from clinical observation and laboratory experimentation, is the retrograde injection of bile or duodenal contents through the ducts of Wirsung and Santorini. Biliary tract infections have been present in more than 50 per cent of the reported cases. The lymphatics draining the gallbladder and bile ducts are in intimate association with the lymphatics of the head of the pancreas before they join the aortic group. It is believed by some that infection following this path readily enters the head of the pancreas where resultant inflammation and minute hemorrhages may readily activate the pancreatic ferment. It has been proved that normal bile salts induce pancreatic necrosis and that this action is greatly intensified when the bile shows bacterial contamination. This destructive action on the pancreatic cells is greatly augmented by the activation of trypsinogen within the gland itself: normally this is done by the enterokinase in the duodenum but bile, bacteria and their toxins and the calcium of effused blood are also capable of inciting its activity. When this occurs within the gland the powerful digestant action of the ferment upon the blood vessels of the pancreas doubtless in part explains the marked hemorrhagic deposit and in part the pancreatic necrosis while the absorption of the toxic proteoses, chiefly histamine, resulting from its action on the necrotic pancreatic cells is in large measure responsible for the shock and early toxic manifestations. The areas of fat necrosis commonly seen in the peritoneum, root of mesentery, mesocolon and omentum are due to the action of the steapsin or lipase in the escaped pancreatic secretion upon the fat molecule, breaking it up into its component glycerine and fatty acids, the latter uniting with the calcium. Cases reported in which such areas have been observed in the pericardial and

extrapleural fat would indicate that these ferments are capable of transportation by lymph or blood stream.

There are no pathognomonic symptoms of acute pancreatitis; the wide variations in the severity of the disease permit a corresponding variation in the intensity of the symptoms evinced by it. The physical signs will depend on the state of the disease at which the patient is seen; in some cases the lack of symptoms and physical signs is remarkable when compared with the extent and severity of the local lesion, while in others the reverse obtains. Laboratory examinations are of but little aid in reaching a diagnosis; the leukocyte count may be normal or but moderately increased, high counts being unusual. Such blood findings are in harmony with the belief that the extensive destruction of pancreatic tissue is due to the action of the bile salts plus the activation of trysinogen rather than to actual bacterial attack. The blood sugar may show a rise after the first 24 hours, affording when present a confirmatory sign. The urine frequently shows albumin, occasionally bile, casts and microscopic blood.

For diagnosis reliance must be placed chiefly upon the history of previous upper abdominal disease, the presenting symptoms and physical findings. Pain, vomiting and, in the hyperacute cases, collapse are the most important of the former. Deep epigastric pain radiating from the right costal margin across the upper abdomen, tenderness following the course of the pancreas, pain and tenderness to the left of the midline and the detection of a mass in the pancreatic area are beacon lights when elicited. In the hyperacute cases the pain is agonizing, the remaining symptoms being those of profound shock, death not infrequently supervening before reaction occurs. Should reaction occur and also in the primarily less severe cases, the symptoms partake more of a toxic character due to the absorption of the split protein derivatives and the chemical irritation of the peritoneum. Granting the continued survival of the patient, local signs often become apparent as a result of hemorrhagic infiltration or closure of the foramen of Winslow with the accumulation of fluid, serous, hemorrhagic or purulent, in the lesser peritoneal sac. After all it is not so important to make a correct diagnosis of acute pancreatitis as it is to recognize the presence of an acute

surgical lesion in the upper abdomen; the predominance of symptoms at and above the umbilicus will usually permit this localization when prompt operation will direct one to the lesion.

The earlier the operation the less the destruction of the pancreas, the less the absorption of toxic proteoses, the less the peritonitis, and consequently the greater the number of recoveries. The indications are to relieve tension, to stop hemorrhage, to prevent leakage and to afford drainage; the fact that the pancreas has no proper capsule, being imbedded in loose retroperitoneal tissue and fat, permits rapid extension of hemorrhagic and inflammatory infiltration; the application of gauze tampons and tube drains in and around the focus of pancreatic destruction will best fulfil these indications.

Drainage of the gallbladder, when the condition of the patient allows, is a worthwhile procedure in promoting recovery and securing immunity from further attacks. As ultimate results chronic pancreatitis, cyst formation and disturbance of glycogenic function are occasionally observed.

The type of chronic pancreatitis in which surgery offers help is that characterized by chronic inflammatory enlargement with induration. It is almost invariably associated with and dependent upon biliary tract infection. The symptoms at times are not to be distinguished from those of gallstone disease consisting of epigastric pain and reflex digestive disturbance. In others recurrent attacks of subacute pancreatitis with pain to the left of the midline and tenderness over the course of the organ point clearly to its involvement, while in still others the vague symptoms are those commonly associated with biliary stasis. The milder type is not uncommonly found in patients with long standing disease of the gallbladder and is usually noted with long standing disease in the common duct. Not infrequently an ulcer perforating the posterior wall of the duodenum into the head of the pancreas originates such an inflammation. The head of the pancreas in such cases shows palpable increase in size and density and usually the correction of the lesion whether in the biliary tract or the duodenum suffices to bring about resolution.

In the more advanced cases the inflammatory enlargement

of the pancreas is more extensive, involving the body as well as the head of the organ. With the occurrence of fibrosis dependent upon long standing inflammatory deposit the islands of Langerhans may be injured giving rise to disturbance in their glycogenic function. The formation of the external secretion suffers interference with resultant impairment of resistance due to faulty digestion and assimilation. In 60 per cent of all individuals the terminal portion of the common duct is entirely surrounded by pancreatic tissue; this anatomic arrangement allows compression obstruction when the pancreatic tissue surrounding the duct becomes markedly involved in the inflammatory process, giving rise to jaundice and further impairing the digestive function.

In the surgical treatment of chronic pancreatitis two indications exist, one to put the biliary tract in such condition that infected bile is no longer forced into the pancreatic duct; the other, to provide bile drainage over a period of time sufficiently long to give the swollen pancreas its best chance for resolution. The first indication implies the removal of stones with a thorough toilet of the gallbladder and common duct. There is some difference of opinion as to the disposition of the gallbladder, one school arguing for its removal in the belief that compensatory dilatation of the common duct will afford adequate drainage, the other that it should be preserved for utilization as a drainage channel. The second indication means the employment of drainage over a period of weeks or months since it will require this length of time for the disappearance of the inflammatory deposit. External drainage of bile for such a long time is objectionable in that the bile is diverted from its physiologic usage.

When the size and condition of the gallbladder permit its retention it has been my practice in such cases to make an anastomosis between it and the second portion of the duodenum or the anterior wall of the stomach as local conditions warrant, thus affording both adequate prolonged drainage and the retention of the bile for its physiologic purpose. In the event the gallbladder has been previously removed or if present it is contracted or its walls so damaged that its continued presence constitutes a further menace, it has been my practice to remove it, in both instances draining the common

duct with a T-tube, allowing the latter to remain for two to four months, according to the visible and palpable extent of pancreatic disease. When the patient's recovery has advanced to the stage of being out of bed a stop cock is placed on the T-tube and intermittent drainage is employed during the time the tube remains in situ. Resumption of ordinary occupation is allowed with drainage tube open at night and for one or two hours during the day. Such a regime supplies drainage for the requisite time while allowing the bile to flow into the intestine during the hours of active digestion.

Cysts of the pancreas, if we exclude the rare congenital, hydatid and dermoid types, are of four varieties:

1. Retention cysts which develop as a result of obstruction to a pancreatic duct or an acinus, commonly in the course of, or associated with, a chronic pancreatitis.

2. Proliferation cysts which are true tumors of the cystadenomatous type. They arise from a proliferation of the parenchymal cells plus a retention of their secretion.

3. Degeneration or hemorrhagic cysts which represent the softening and cystic transformation of destroyed pancreatic tissue whether from trauma or true pancreatic apoplexies. In the latter event the acute symptoms characteristic of the onset point rather clearly to the mode of origin.

4. Pseudo-cysts, which like the last named group, are due to trauma or pancreatic necrosis, differing only in location, consisting of an accumulation of fluid in the lesser peritoneal cavity.

When the cyst attains sufficient size to be palpable, it appears as an elastic tumor above the stomach, behind the stomach, between the stomach and colon or between the layers of the transverse mesocolon. It may extend to the right or to the left of the midline and does not move with respiration. Pain, digestive disturbance and discomfort from pressure on adjacent organs plus the presence of tumor are the cardinal symptoms. The diagnosis is to be made on the history, which, when revealing trauma or pancreatitis is particularly helpful, on the physical findings and the elimination of the gallbladder and gastro-intestinal tract by x-ray studies. Urinalysis and blood examinations show few departures from the normal. Exceptionally jaundice may be produced by pressure on the common bile duct and diabetes and glycosuria are noted if

the main pancreatic duct becomes obstructed and there is subsequent involvement of the islands of Langerhans. The treatment is definitely surgical, either excision or incision with marsupialization. The former is preferable where possible to carry out and absolutely essential for cure if the cyst arises in a papillary cystadenoma; in the simple and pseudo-cysts, incision, marsupialization and drainage is a much safer procedure and in the vast majority of cases eventually results in disappearance of the cyst and satisfactory closure of the drainage tract. In the few in which persistence of the discharge depends upon communication of the sinus with one of the larger pancreatic ducts the operation of dissecting out the fistulous tract with closure by suture or of implanting this tract into the stomach or small bowel is suggested.

Benign tumors of the pancreas are exceedingly rare and but few operations for removal have been reported. Archibald records 16 with recovery in all save one, though frequently complicated by long standing fistula. With the exception of one pedunculated tumor of the head, all were located in the body or tail of the organ, where anatomic relations and physiologic considerations permit of readier attack than those encountered when the head is involved. I have been fortunate enough to observe three such tumors, all cystadenomas originating in the body of the organ, and all treated by excision with two recoveries and one death. No disturbance of carbohydrate metabolism was noted either before or after operation.

The malignant tumors are practically always carcinomas and present in one of two clinical groups; one in which the head is the site of the growth when jaundice is the predominant symptom, and the other in which the growth is located in the body of the pancreas, when pain is the cardinal symptom. When the growth involves the head vague symptoms of "indigestion" are followed by jaundice, rapid loss of weight and progressive weakness due to cholemia and loss of pancreatic function in digestion. Ordinarily there is no evidence of disturbance of internal secretion, a sufficient amount of the organ remaining uninvolved to carry on sugar metabolism. Painless distention of the gallbladder due to common duct obstruction by the growth is a valuable confirmatory sign, although at times observed in chronic pancreatitis. In my

experience, with the abdomen open, it has at times been difficult, at others impossible, to distinguish satisfactorily between carcinoma of the head and pancreatitis. In carcinoma of the head surgery offers but palliation; a union of the gallbladder with the stomach or duodenum brings relief from the intolerable itching and grants a respite of life of some months' duration in reasonable comfort. In my experience the most impressive symptom dependent upon carcinoma of the body and tail of the pancreas has been deep epigastric pain, most marked to the left of the midline, extending to the back below the angle of the left scapula. This with digestive disturbance and progressive emaciation, when other upper abdominal lesions can be ruled out, is strongly suggestive. A palpable tumor is present in but one-third of the cases and is usually a late symptom. Surgical treatment offers little short of diagnostic confirmation. The fact that the body and tail of the pancreas have been successfully resected for benign tumors has led to the employment of this procedure in dealing with carcinoma in like situations but in all reported cases the patients have died sooner or later. The technical difficulties encountered in removing a malignant growth from the head of the pancreas are insuperable. In the light of our present knowledge the role of surgery in pancreatic malignancy is purely and simply palliative. One may well conclude with Archibald that "our old friend with the scythe, provided he come without pain and quietly, lays his hand perhaps more gently upon the patient than does the surgeon who sees his ideal only in technic. The true function of the surgeon is sometimes rather to relieve pain than to save life."

The lesions so far considered rarely affect the internal secretion of the pancreas. The function of the islet cells, although their disturbance was surmised to be associated in some way with diabetes, was not understood until the contribution of Banting and Best in 1922 made it clear that it had to do with carbohydrate metabolism. The discovery of insulin by these authors has permitted the control of hyperglycemia contingent upon deficiency of islet cell secretion. It was soon noted that an overdose of insulin produced hypoglycemia with its attendant train of symptoms. Harris and other observers noted similar symptoms in patients presenting

hypoglycemia, to which Harris gave the name of hyperinsulinism as opposed to the hypo-insulinism of diabetes. While in the early part of this century, adenomas of the islet cells had been described by pathologists, based upon postmortem studies, it remained for Wilder in 1927 to demonstrate the connection between adenoma of the islet cells and hyperinsulinism. A complete review of this rare tumor of the pancreas is to be found in a comprehensive and interesting article by Whipple and Frantz in the June issue of the current year of the Annals of Surgery. They have been able to collect from the literature 29 cases in which the tumor was removed by operation, to which they add an additional six cases from their own experience. While the tumors have been observed in all parts of the pancreas, they were found most frequently in the body and tail, in which portions the islets are most numerous. They were as a rule small, 1 to 2 cm. in diameter, purplish pink in appearance, commonly single, occasionally multiple and were readily removed upon adequate exposure of the pancreas. In the series reported by Whipple and Frantz eight tumors were removed from six patients and upon microscopic study were, for the present at least, classified as adenomas.

The clinical symptoms in the reported cases of hyperinsulinism vary but in general conform to a chronic illness with acute attacks at intervals. The attacks are related to the desire for food, and patients learn that they may be averted by partaking freely of carbohydrates. The symptoms noted during the attack consist of hunger, weakness, vertigo, confusion, syncope, disorientation, convulsions, delirium and coma, presenting in varying associations those described by Banting in insulin shock. During the attack the hypoglycemia is marked, the blood sugar ranging in the reported cases from 4 to 58. The authors call attention to the fact that there are many causes of hypoglycemia other than lesions of the pancreas, the most important being disturbances of the adrenal, pituitary and thyroid glands, exhaustion of the glycogen reserve in diseases of the liver and theoretically in muscular wasting, all of which must be ruled out before operation can be considered. In the series of cases covered in their study there has been no fatality and all from whom adenomas have been removed have been cured of their hypoglycemia.

URETERO-INTESTINAL ANASTOMOSIS

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URETERO-INTESTINAL anastomosis, or transplantation of the ureters into the large intestine, is now recognized as an indispensable procedure in the correction of conditions in which it is necessary to divert the flow of urine from the bladder. It is an operation which has been accompanied by immediate and remote dangers, yet, when the details of technic have been mastered, the dangers are so lessened that one should no longer hesitate to advise it when indicated.

It is remarkable how readily the rectum adjusts itself to the presence of the urine following these operations. After a few weeks the patient usually gains complete control over the emptying of the urine, provided there is good sphincter control, and the habit is acquired with nearly the same regularity as from the bladder. There is little discomfort, after one has become accustomed to the condition, and it is gratifying to see the joy and relief which come to the patient previously so uncomfortable and unhappy.

Indications and Contraindications

The indications for this operation have increased since the attendant hazards have been lessened in the hands of those who have been willing to devote time and study sufficient to become proficient in the application of its technical requirements. Exstrophy of the bladder and total epispadias with complete incontinence of urine offer direct indications. Its usefulness has now been expanded to include employment in such conditions as malignancy of the bladder, ureters, or prostate, in which extirpation, or heavy doses of radium are necessary; also it may be indicated in certain cases of tuberculosis of the bladder, in which it can be shown that only one kidney and ureter is involved; likewise it may serve as a complete restoration for incurable vesico-vaginal fistulas in which sev-

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eral unsuccessful operations have been performed, leaving the patient otherwise hopelessly incurable.

Quoting from an original article by the late Dr. Robert C. Coffey[1], of Portland, Ore., regarding its usefulness and indications, we may get his broad and enthusiastic viewpoint:

> Since the establishment of this technic, I have for the first time felt justified in recommending this operation for general use in cancer and maladies other than exstrophy of the bladder. I have, in the past communications, expressed the hope that we would at some time perfect a technic which would be safe enough to justify such recommendation. I think we may confidently state that not only the problem, but the technic, has been solved and that we may now safely recommend the operation to skilled abdominal surgeons, whether urologists, gynecologists or general surgeons in the following cases:
>
> 1. Incurable carcinoma of the bladder, urethra or prostate for palliative purposes.
> 2. Advanced carcinoma of the bladder, urethra or prostate in which it is impossible surgically to remove the growth, but in which it is possible with the use of large and even ruthless doses of radium to destroy the growth.
> 3. Early curable carcinoma as an essential part of the operation of total cystectomy, which may include prostatectomy in the male or hysterectomy in the female.
> 4. Carcinoma involving the urethra.
> 5. Incurable vesicovaginal fistulae.
> 6. Contracted bladder, due to scars of ulceration or to other causes.
> 7. Extensive, incurable, multiple perineal fistulas resulting from various other causes.
> 8. Tuberculous ulcerations of the bladder in which one kidney remains good, the other to be removed.
> 9. Traumatic injuries which make the use of the bladder impracticable.
> 10. Exstrophy of the bladder.
>
> To summarize the indications, the operation may be considered justified in any condition in which it is necessary to dispense with the bladder as a reservoir for urine.

Walters and Braasch[2] give us certain contraindications which should prove helpful to the surgeon in determining a favorable outcome when contemplating uretero-intestinal anastomosis. They advise that children under three years of age, who are too young to be taught sphincter control, should not be subject to this operation; likewise they believe that this applies to any children with congenital weakness of the rectal sphincter. Renal insufficiency and bilateral lithiasis also constitute contraindications.

According to these men, there are certain preoperative considerations which should never be overlooked: Intravenous

urography, and the usual methods of estimating renal function are of great value both before and after operation, since they furnish pertinent facts as regards renal function, post-operative visualization of operative results, evidence of ureterectasis, pyelectasis, and renal infection.

HAZARDS

This procedure was first attempted in 1878 by Thomas Smith,[3] an English surgeon. He performed it in two stages, with an interval of eleven months. His patient died a few hours after the second operation, and necropsy revealed that the kidney on the side of the first anastomosis showed such a marked degree of damage as to be devoid of function, and that the second operation resulted in inhibition of kidney function on the other side, thus inducing uremia and death.

Many further attempts were made during the following years, to perfect a method in which a permanently successful result might be obtained. You are already familiar with the efforts of Maydl in Germany, George A. Peters in Canada, and men in Sweden, Italy and other countries. Many failures were encountered, both at the site of anastomosis, and from conditions developing in the ureter and kidney. These were due mainly to accidents in healing around the implantation, or stricture of the implanted ureteral end, the latter resulting in hydro-ureter, ureterectasis, pyelectasis, dilatation of the calices, with pressure destruction of renal tissue, or often otherwise accompanied by ascending infection. It was the necessity for eliminating these hazards that spurred pioneer experimentation, and efforts to overcome them.

Kirvin[4] of New York, having experimented rather extensively on ureteral anastomosis in dogs states:

> The three main factors in non-success appear to be:
>
> 1. Improper technic, i. e., lack of surgical experience with this particular procedure.
> 2. Stricture, causing back pressure, or other causes of renal infection.
> 3. Surgical trauma to the nerves and muscles of the ureteral duct itself, which will occur just as readily in a sterile field, as when direct exposure to infection has taken place.

In summing up the physiologic effects of trauma upon the ureter, he further says:

1. When the muscular and nervous structure of the ureteral wall is impaired, the normal physiologic action of that wall is seriously interfered with.
2. When the ureter has been severed and then reunited, it has been noted that the renal end is traversed by peristaltic waves which start at the pelvis, and undulate progressively as far as the point of anastomosis, where they are inhibited.
3. Gradual accumulation of urine now takes place.
4. When sufficient filling has occurred to make an overflow into the lower segment of the duct, another peristaltic wave will be set up in the vesical end of the ureter.
5. This subsequent peristaltic wave is wholly separate and independent of any which arise at the pelvic end of the ureter.

From these physiologic effects of trauma upon the ureter, one may accept his observations on animals which show that, though peristaltic movement still persists in the ureter, its force is much diminished; this in turn may result in dilatation of the ureter above the point of suture, with a concomitant hydro-ureter and hydronephrosis. While we must accept these hazards which may accompany this operation, and though we must realize that remote results, unfortunately, have been reported which would make us sometimes dread their consequences, it nevertheless remains that uretero-intestinal anastomosis is a valuable contribution to surgery, and where properly applied in certain conditions, it offers health, extended life and true happiness to many who may otherwise be relegated to much suffering and finally death.

TECHNIC

While we recognize that many surgeons contributed much in this direction, it was Coffey[5], who, in 1911, presenting his first technic, gave us the solution to this vexing problem. It is for his successive improvements in technic that we are indebted to him for the progress and success accomplished during the last two decades, though always with grateful acknowledgment he expressed his indebtedness to others for their suggestions.

Coffey twice altered the technic of his first operation in the course of his experimental research. The last procedure was called the aseptic method of transplantation, though some difficulties were encountered in this method. Until these diffi-

culties could be overcome, as anticipated by him, it was his opinion that his technic "2" was probably the choice to be recommended for general use.

In perfecting the principles for successful employment of uretero-intestinal anastomosis he realized that some type of operation must be evolved, whereby the valve action necessary to transmit properly a fluid from an organ of lesser pressure to one of greater pressure, at a given temperature, could be

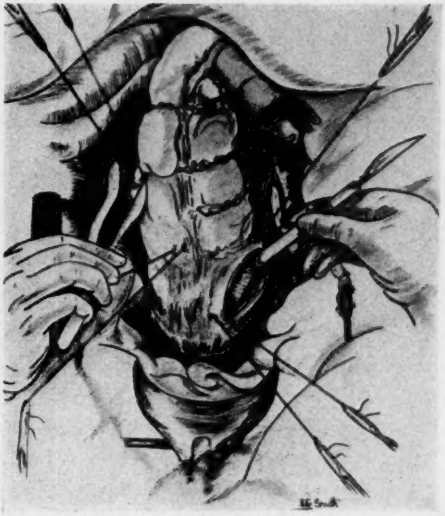

FIG. 1. The ureters have been mobilized and cut, preparatory to the introduction of the catheters. An intestinal clamp is on the bowel above to prevent its contents from entering the field of operation. Traction sutures have been placed at both ends of the incisions to steady the bowel. Note the incision through the serous and muscular coats on the left. The incision into the bowel for the right ureter is about to be made: note that it is at a higher level than that for the left ureter.

accomplished. Such evidence of this physiologic valve action is present in the natural implantation of the bile duct into the duodenum, and the entrance of the ureters into the bladder. Instead of the tube entering the viscus directly through its wall, it enters underneath the peritoneal and muscular coats and traverses a short distance underneath this covering before it penetrates the mucosa or inner coat. By this mechanism, the pressure of the fluid from above will permit

intermittent flow into the viscus, and when the viscus, such as the bladder or intestine, undergoes the muscular contraction to empty itself, it automatically produces sufficient pressure upon the portion of the tube lying between the mucosa and outer coats to effect a closure during contraction. It is with the accomplishment of this result that there can be no reflux of fluid from the viscus into the ureter. Since the principle of the valve action has been solved, which is a necessity in successful uretero-intestinal anastomosis, the results have become phenomenally more satisfactory.

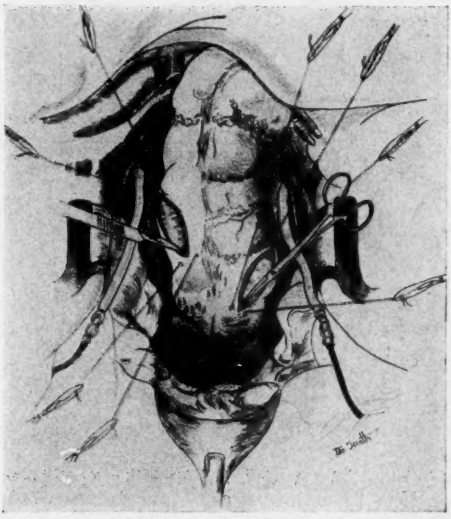

FIG. 2. Small bit of gauze previously packed into the sigmoid through a proctoscope is being caught with mosquito forceps through a small puncture incision. Note the fine-pointed knife puncturing the mucosa on the right. The end of each catheter is attached to the gauze with linen thread.

The Coffey technic or some modification of it, probably now forms the basic foundation of all methods employed in transplanting the ureters into the large intestine. Walters and Braasch of the Mayo Clinic, report a rather large series of these operations and agree with the general principles advocated by Coffey; however, instead of doing a simultaneous bilateral implantation, with the tube method, they have met with success in performing a unilateral operation at one sit-

ting, without the employment of the tube, and waiting 12 to 14 days to do the other side. By this means they claim that if any accident should occur to interfere with the anastomosis or renal function, only one side would be endangered and the other kidney and ureter would not be threatened.

With a technic developed by Higgins[6] of Cleveland an aseptic bilateral uretero-intestinal anastomosis for exstrophy of the bladder is done at one operation, without the use of catheters. In this procedure, the ureters are freed along their

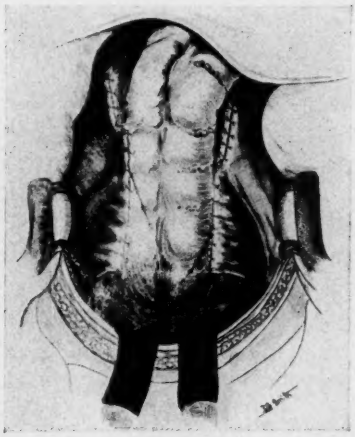

FIG. 3. Both ureters have been implanted into the sigmoid, the left lower than the right. The posterior parietal peritoneum closed and anchored to the bowel. The ureters and bowel are retroperitoneal. A gauze drain is inserted into the retroperitoneal space on each side in event of leakage or infection.

course without being severed from the bladder, and at the point of intestinal anastomosis they are placed in the bowel incision underneath the peritoneal and muscular coats, the ureter emerging with its uninterrupted continuity. One stitch, preferably a mattress suture, is taken through the ureteral wall and mucosa of the intestine at the lower angle where the anastomosis is to be formed, and in 48 to 72 hours sloughing takes place which completes the anastomosis, after which the bladder is removed and the ureters are severed below this point at a subsequent operation. By this plan there is no interruption in kidney function. In a series of cases done by

him he states that practically no unfavorable complications have ensued, though he further says that sufficient time has not elapsed for definite conclusions to be reached as regards remote results.

By the Coffey technic "2," the patient is subjected to one abdominal operation. It appears that in suitable cases the bilateral tube method would offer practically as much safety as any of the two-stage operations and would save the patient the anxiety and strain of a second operation, as well as effecting a financial saving necessary to some patients. I wish to acknowledge gratefully the privilege of visiting Dr. Coffey's

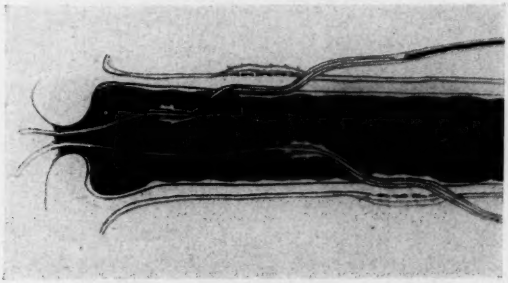

FIG. 4. Schematic drawing showing ureters and catheters after completed operation, before sloughing of the lower ends of the ureters.

Clinic, during his life-time where the contact with his work, watching him perform his operation and observing some of his brilliant results, afforded much inspiration.

Whatever technic is decided upon, it must be remembered that one should not overlook the importance of surrounding himself with trained assistants, so that he may avoid breaks in technic which might mean the complete failure of an otherwise perfect accomplishment. A high degree of proficiency is necessary in any of the procedures. While it is an operation that can, by practice, be mastered by those willing to devote sufficient effort to familiarize themselves thoroughly with its meticulous requirements, it demands greater technical skill than is essential to surgeons working under ordinary conditions of practice.

CASE REPORT

The following case report illustrates the steps employed in performing a recent uretero-intestinal anastomosis for exstrophy of the bladder, done strictly according to the Coffey technic "2."

The case above mentioned was a white boy, 10 years of age, who came to operation on account of discomfort as well as embarrassment from this condition.

OPERATION—FEBRUARY 22, 1934

On the day and night before operation he was given castor oil and cleansing enemas. On the morning of the operation he was given another enema just before going to operating room. Under general anesthesia, an incision about 22 cm. long was made just to the left of the midline, and extending down to about 3 cm. above the bladder. The intestines were carefully packed away from the field of operation and the sigmoid exposed. An intestinal clamp was put on well above the site of anastomosis (Fig. 1). This was

FIG. 5. Photograph of the boy before operation.

done to isolate the lower segment of bowel. The patient was then drawn down to the end of the table sufficiently far to allow the buttocks to extend beyond the table. A proctologist then inserted a sigmoidoscope into the rectum and the obturator was removed.

The posterior parietal peritoneum over the course of the ureters was incised, the ureters were freed from their attachment, extending from above the site of anastomosis to their insertion into the bladder, and were severed at this lower point (Fig. 1). Two No. 10 whistle-tip catheters, to which had been attached a rubber cuff for anchoring the ureters to them, were then inserted up the ureters to the pelvis of the kidney, and the ureters anchored over the rubber cuff.

Next, traction sutures were inserted through the serous and muscular coats of the sigmoid, in order to hold the bowel in perfect position for the incisions into it (Fig. 1). An oblique incision about 4 cm. in length was made on either side of the sigmoid, and at different levels, down through

the serous and muscular coats (Fig. 1). A very small forceps was then inserted through this stab incision and the gauze packing picked up (Fig. 2), and to which the ends of the catheters were fastened by a needle and thread previously put into the catheters. When this was done, an assistant began to remove the gauze strip carefully from the bowel from below, and the operator guided the ureters attached to the catheters into their respective openings in the bowel. They were pulled down comfortably taut and the ureters were then sutured in place. One suture was taken through the wall of the ureter and through all the coats of the bowel just where the ureter penetrated the mucosa, and this anchored the ureter firmly at this point. The remainder of the sutures were taken through the serous and

FIG. 6. Close up photograph showing exstrophy of the bladder, with urine exuding.

muscular coats on either side of the incision and the ureters were enclosed throughout the length of their course in the bowel by enfolding them underneath the serous and muscular coats. A second layer of sutures was then made to reinforce the first layer.

The incised parietal peritoneum was next sutured over the site of anastomosis, thus leaving the field of operation behind the peritoneum (Fig. 3). A penrose drain was inserted into the retroperitoneal space on either side, to insure safety in case of leakage or infection (Fig. 3). The abdomen was then closed. When the gauze was withdrawn from the rectum, the ends of the catheters were brought out and carefully protected, so that no tension might be exerted on them until after the portion of the ureters below its point of anastomosis had sloughed away. This usually takes place in about ten to fourteen days, and in this case both catheters came away on the eleventh day.

Course and Results

Convalescence was rather uneventful, except that there was a slight febrile course for the first few days, and then about the fourteenth day there was a slight drainage of urine and feces through the abdominal incision but this cleared up spontaneously.

After a period of about four months the bladder was removed and a plastic reconstruction operation of the penis was done. The result has been gratifying and the patient is entirely comfortable. He has good sphincter control and is able to go a few hours during the day, and almost the entire night before emptying the urine from the rectum.

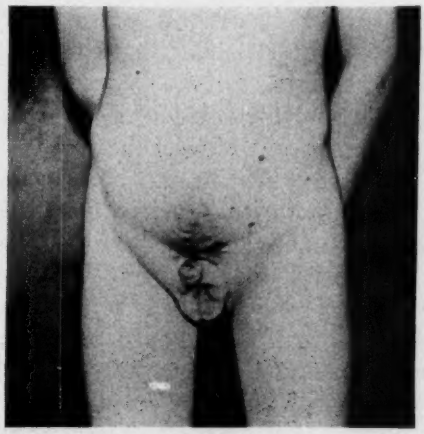

Fig. 7. Photograph of the boy after operation.

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Note

I wish to express my appreciation to Drs. Upchurch, Selman and Pruitt for their cooperation, also, to Mrs. Doris G. Smith for her drawings which have made it possible for me to demonstrate each step of the operation.

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EPHRAIM McDOWELL

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ALL the McDowells were pioneers. They laughed in the teeth of death as they pushed onward into new fields beyond the golden sun. Blood and war, steel and musket, many masted ships that tossed fitfully on raging seas, red men and tomahawks, the cold, cheerless winters of a home in the wilderness, these the McDowells knew.

Fiercest of all the clans besides the Campbells, fighting against the tightening oppression of the Stuarts, were the sons of Dowell. Borne of brave Dougal, the worthy son of Ronald, the son of the immortal Somerled, they had from time immemorial marched and fought under the cloudberry bush, which became the badge of their clan. They marshalled under the banner of the ancient Lords of Lorn, the hereditary chiefs of their race, and fought with uncommon valor for their beloved Scotland.

When the new lands beyond the sea known as America were being colonized, a brave band of McDowells emigrated to the Colony of Pennsylvania where they settled in 1729. Ephraim McDowell, the Londonderry warrior, was the leader of the McDowells in their new adventure. He remained in Pennsylvania but a few years. Here his son married Magdelena Wood, whose mother was a Campbell, who had fought side by side with the Dowells in former days and who had come to America to seek new fortunes. In Pennsylvania was born Samuel the father of Dr. Ephraim McDowell, the greatest McDowell of all. In later years another McDowell, Edward, was to sing the first truly American songs.

Samuel McDowell moved south where he settled in Rockbridge County, Virginia. There Ephraim was born on November 11, 1771. Here the family lived for thirteen years when the call to wander again entered the McDowell blood. They pulled up stakes and moved to Danville, Kentucky, where they settled. This was the Boone country where life was harder than in the more eastern colony. But the McDowells seemed to thrive on hard life.

There were no medical schools anywhere on the Boone Trace. The usual thing was to enter a doctor's office and read his books and visit with him. Ephraim entered the office of Dr. Humphrey. This physician was a graduate of the University of Edinburgh, and this was responsible for Ephraim McDowell's journey to that famous medical center to round out his medical education. The years 1793 and 1794 were spent in Edinburgh. In 1795 he returned to his native Danville to practice his profession.

For fourteen years Dr. McDowell practiced his profession in the wilderness. He was both physician and surgeon to the hardy pioneers who settled in the vicinity of Danville. He might have practiced his profession for the remainder of his life as a backwoods doctor and like the countless others remained unknown to fame. But Fate and the pioneering McDowell spirit decreed otherwise. Fate might have thrust the same opportunity into the lap of another, but the McDowell desire to venture into the unknown was the deciding factor.

On the thirteenth of December, 1809, McDowell received a call to come at once to see a Mrs. Jane Todd Crawford, living in Green County, Kentucky, some sixty miles distance from Danville. After a hard journey on horseback Dr. McDowell reached the Crawford household. Once arrived there he found two local doctors in puzzled consultation. Mrs. Crawford presented a most unusual problem. She was thought to have gone long beyond her time in childbirth.

Upon examination Dr. McDowell found her to be suffering from pains very similar to labor pains. The two other physicians, schooled in the uncertain science of the new country, thought that this was a very difficult case of labor which required more expert ministrations than their own. A rapid but thorough examination convinced Dr. McDowell otherwise. Mrs. Crawford was not with child. She was suffering from an enormous growth arising from one of her ovaries.

Ovarian tumors in those days were puzzling. Not very much was known about them. Doctors were not very expert in diagnosing them. This lack of knowledge was often productive of tragic results. Dr. McDowell recalled the case

of a young daughter of a minister, unmarried and virtuous, who became the victim of one of these tumors. As time went on the tumor grew as a living child within the womb. To all outward appearance this young girl looked like one with child. Scornful fingers pointed meaningly at her swollen belly. Wagging tongues spread malicious lies that spread like wildfire through the sparsely settled community and said she was carrying a bastard. She was finally driven to suicide. The wise doctors at the autopsy found that it was a growing tumor that gave this young girl her unusual appearance. Her reputation was cleared, but a life had to be sacrificed to do it.

Dr. McDowell informed Mrs. Crawford that she was not with child, but that she was instead harboring a growing tumor arising from her left ovary. "There is no medicine I can give you which will cause the tumor to recede even a little. From what I know of ovarian tumors this one will certainly continue to grow larger and larger with perhaps a fatal outcome. There is nothing in all the materia medica which can help you. The only relief that you can hope for is from an operation to remove the tumor."

Ephraim McDowell was lost a while in thought. He continued: "But it is right for me to tell you that I have never before removed such a tumor. Nor do I know of any doctor who has. If you are willing, and by the help of God, I shall undertake this operation."

Mrs. Crawford was made of the stuff of pioneers. She was heroic and courageous as were most of the women of the wild Kentucky country of that period. Her eyes had seen much blood; her body had known much pain. She was accustomed to brave the dangers of the tomahawk and scalping knife. She certainly knew life in its hardest and cruelest aspects. There was but a slight tremor of her lips when she replied: "Doctor, I am ready for the operation."

Mrs. Crawford rode sixty miles to Danville to be operated on in McDowell's home. There was no donning of white, germ-free gowns, no sterilization of rubber gloves and gleaming instruments. Ether and chloroform were unknown in 1809.

McDowell was ready for the greatest bit of pioneering that the pioneering McDowells had ever undertaken. He was to

push on into a fearfully strange new land. He was to undertake an operation that no man had ever dreamt of before. The doctor felt the most solemn moment in his life, and he knelt down and prayed:

"Almighty God, be with me I humbly beseech Thee, in this attendance in Thy holy hour; give me becoming awe of Thy presence, grant me Thy direction and aid, I beseech Thee, that in confessing I may be humble and truly penitent in prayer, serious and devout in praises, grateful and sincere, and in hearing Thy word attentive, and willing and desirous to be instructed. Direct me, oh God, in performing this operation, for I am but an instrument in Thy hands, and am but Thy servant, and if it is Thy will, oh, spare this poor afflicted woman. Oh, give me true faith in the atonement of Thy Son, Jesus Christ, or a love sufficient to procure Thy favor and blessing; that worshipping Thee in spirit and in truth my services may be accepted through his all-sufficient merit. Amen."

Dr. McDowell removed his coat, and with his scalpel made an incision on the left side of the abdomen, some nine inches in length. Mrs. Crawford struggled in pain and it was necessary to hold her down. The strong arms of the neighbors volunteered for this painful duty. Dr. McDowell worked rapidly and expertly, in spite of the fact that this was work he had never done before. Soon the tumor, later ascertained to weigh twenty-two pounds, was removed through the heroic incision.

But Mrs. Crawford did not die on the operating table. She lived through that awful bout of nerve-tearing pain. The tumor was removed without mishap; the incision was sewed up, and Mrs. Crawford, though in pain, did feel a measure of relief because of the removal of the oppressive pressure that the growth had caused. Her wound was dressed. Tenderly she was lifted from the improvised operating table and put to bed. The operation had been successfully performed. But would Mrs. Crawford survive it for any length of time? Five days later he visited her again, and much to his astonishment and gratification, he found that she was engaged in making her bed. Mrs. Crawford, though pale, was on her feet, engaged in her daily household tasks.

Mrs. Crawford was made of sturdy stuff. She recovered completely within a month and lived to the age of eighty, a thing which would have been impossible had the tumor been allowed to grow within her. The fame of Dr. McDowell grew. But his reputation also suffered some weird twists. Like most pioneers in strange fields he had to contend not only with the prejudice of his colleagues, but also with the superstitious awe of the rough and ignorant woodsfolk.

The fame of Dr. McDowell as a surgeon had now thoroughly permeated through the surrounding countryside. In 1813 he was called in to see his second case of ovarian tumor. This was in a negro woman slave. In spite of his previous success Dr. McDowell did not at once proceed to operate. He was the true surgeon. He tried all non-surgical measures before he finally resorted to surgery, which he considered the last resort. He patiently treated the negro woman with mercury for a period of four months. There was but a slight abatement of pain, but the tumor was not affected in the slightest. It grew more massive and incapacitated its victim entirely.

Dr. McDowell thought that an operation in this case was inadvisable. But the master of the negro slave had the greatest confidence in the doctor's surgical skill. He implored him to operate. The operation on this second case of ovarian tumor was more difficult than that on Mrs. Crawford. There was a great loss of blood, and the tumor was removed with the greatest difficulty. The planks of the rough table had become drenched in blood. At the completion of the operation Dr. McDowell felt that the case was hopeless. He attended her anxiously for several weeks. She recovered and in a few months was able to resume her hard work.

The pioneering of Dr. McDowell was bearing fruit. Both his ventures had been successful. He was now respected as a surgeon of incomparable skill in removing these growths. In the summer of 1822 he made a horseback journey of several hundred miles into middle Tennessee to remove an ovarian tumor from Mrs. Overton, who lived near the Hermitage, the residence of General Jackson.

Mrs. Overton was enormously obese, and Dr. McDowell had to cut through many layers of fat before reaching the

tumor. It was a very messy affair. There were no trained nurses in those days. The neighbors had to help. As assistants he had a Mrs. Priestly and General Andrew Jackson, later to become the seventh President of the United States. This was perhaps the only time in history that a future President acted as an assistant at a surgical operation.

General Jackson was a pioneer and as a pioneer he appreciated the pioneering of McDowell into fearfully strange places. He was certainly most vividly impressed by McDowell's skill as a surgeon. After the operation he invited him to go to his house to remove a large tumor growing from the neck and shoulders of one of his men. Dr. McDowell removed the growth with a few deft strokes of the scalpel and with remarkably little pain to the patient. He had to work rapidly as anesthetics were then unknown.

Ephraim McDowell was a man of original ideas in many directions. He did not think a great deal of the drugs that science then afforded him. He had a magnificent contempt for the practitioner who purged and bled for fevers. McDowell had more faith in the simpler remedies of nature: the air, the sunshine and water.

When Walter Henderson lay very ill with a high fever with his life despaired of, they sent for Dr. McDowell. He did not bring his lancet and drug bags. Instead he had the patient undressed and laid out naked on the floor. Bucketful after bucketful of cold water he poured over the heat-parched man. Strange as it may seem, the fever actually subsided in a short time, and the patient recovered.

McDowell had more faith in the healing steel than in drugs, although he was not loath to give drugs a thorough trial before deciding upon the more painful and dangerous adventure of an operation. But it was with the scalpel that Dr. McDowell attained his greatest cures.

Not alone was he expert in removing tumors. He had acquired an uncommon cunning with the knife in alleviating quite a few desperate conditions. He set shattered limbs and amputated those beyond repair. He opened the wind-pipe to allow life-giving air to enter the choked lungs in diphtheria. He repaired strangulated hernias, and he was the first to remove a diseased parotid gland from the neck. There

was not an operation he would not undertake to perform. He traveled many miles through wild country on horseback and worked by tallow light in log cabins.

In those days cutting for stone in the bladder was an operation frequently in demand. Dr. McDowell was exceedingly expert in this work. He had many distinguished patients, and perhaps his most distinguished was young James K. Polk who later become President of the United States. Polk was operated on for a bladder stone with great success. Thereafter he remained one of the staunchest friends of this earliest of great American surgeons.

The news of McDowell's new operation for removing of ovarian tumors traveled slowly in those days when newspapers were scarce and medical journals even scarcer. In 1817 Dr. McDowell published the results of his operation in the Philadelphia Eclectic Repository. It took two years for the work of McDowell to be recognized outside of America. The first recognition came from Germany where in 1819 Dr. Chrysmar performed the operation with great success.

In America, the McDowell operation was performed in 1821 by Dr. Nathan Smith in New Haven with great success. Thus recognized by this leader, the founder of the American Medical Association, and other important medical institutions in this country, others began to view McDowell's pioneer effort with great interest. In New York Dr. David L. Rogers, one of the leaders of the early surgeons, also bestowed his approval.

In England John Lizars, leading surgeon of Edinburgh, McDowell's university town, performed the operation with success. In Manchester, Dr. Charles Clay, in London, Dr. Frederick Bird, in France, in Italy and elsewhere in Europe the more enlightened surgeons recognized the work of the backwoods doctor of Kentucky.

Ephraim McDowell, in spite of world-wide acclaim, remained the simple backwoods doctor all his life. His operations were performed not in hospitals but in the log cabins of his patients. His assistants were not white-gowned nurses and assistant surgeons but the rough, simple folk of the early settlers of the Boone country. And yet he had some rather unusual assistants. In those days strong arms were required

to hold the struggling patient. Rough, vitriolic Andrew Jackson, just a few years before he became President, helped the doctor in one of his operations.

Early in life he had married the daughter of Isaac Shelby, first governor of Kentucky, and together these two lived in the simple community where fame had sought him out. But Dr. McDowell was by no means a simple country doctor, eking out a meager living. His work was appreciated and his rewards were liberal. So much was his skill esteemed that the husband of the Mrs. Overton previously referred to sent him a check for $1,500 for the second of the McDowell operations for removal of the killing tumor.

Dr. McDowell did not live to a ripe old age, as had most of the McDowells. On June 20, 1830, while still in his prime, Dr. McDowell died, ironically enough of what seemed to be a surgical disease, which in a later day, might have been readily corrected.

Ephraim McDowell did not remain unknown and unsung. He was one of the earliest of American doctors to whom a monument was erected in the city where he lived and did his greatest work. In 1879 a monument was erected to his memory by the doctors of his state. But the McDowell operation, which freed women from the terror of the growing tumor which crushed the vital organs as it grew, is the greatest monument to Ephraim McDowell, the pioneer backwoods surgeon of early America, who was one of the great masters of the healing steel. Together with Francis Marion Sims, his name is the greatest of any doctor who freed women from the house of pain.

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JAUNDICE: DIAGNOSIS, TREATMENT, AND PROGNOSIS

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INTRODUCTION

IT is a lamentable fact that many lay people, and physicians as well, consider jaundice, when not accompanied by alarming symptoms, a rather harmless condition and do not realize the importance of a complete study to determine the cause. Through delay, serious complications sometimes develop and bring about a fatal ending, with or without needed surgery. Until other cause for the jaundice is found, every adult so affected should be regarded as having some serious obstruction to the biliary outlet. Jaundice lasting for more than a few days should be carefully investigated. If the responsible factor is some type of obstruction which is amenable to surgical treatment, this should be carried out after the patient has been thoroughly prepared.

The jaundice problem is a perplexing one. When the patient and physician first meet, the former is seriously concerned, and all too often the latter is deeply confused as to the safest and best course to pursue. It is evident that something has gone wrong with the biliary system. Being well aware that there are different types of jaundice and that the treatment and end results vary greatly, the physician must know how to manage the condition of the moment and what advice to give. An error may mean disaster. Not all jaundiced patients need surgery. All of them should have medical care for the first few days and many require medical care only throughout the entire course of the disease.

What, then, has happened to divert the bile into the blood stream and stain the tissues yellow? Is there an obstruction in the extrahepatic ducts? Is the obstruction in the liver parenchyma, and are the main ducts open? Will the jaundice clear up spontaneously or will surgical interference be

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necessary? If an operation is indicated, what is likely to be found, and what operation should be done to offer the patient the best chance of recovery? How great is the risk and what may be done to safeguard the patient? If the patient gets well, what may be expected in the future? To answer these important questions adequately, one must have a better knowledge of pathologic physiology than most of us possess. Yet, the average person with jaundice expects every doctor to prescribe for him correctly because of yellow, itching skin, highly colored urine, and clay-colored stools.

Why has the patient suddenly developed this syndrome? It may be answered by stating that his reticulo-endothelial system has produced more bilirubin than the liver cells can excrete, or the functional capacity of the liver cells has been so reduced as to interfere seriously with the excretion of the staining bile pigment, or there is an obstructive lesion in the biliary ducts. How may the physician determine which of these causes is active? This can best be accomplished by (1) carefully considering the pathologic possibilities of the disease, (2) studying all the clinical data at hand, and (3) utilizing certain valuable laboratory aids.

PATHOLOGY

The liver has a complex function to perform. The great surprise is that it does not fail more often. Probably the most convenient way of studying the condition of the liver cells is by observing the behavior of the bile pigment. Jaundice, or staining of the skin and sclerotics by bile pigment, is only a sign. The color varies from a tinge of pale yellow to deep orange, or even a greenish hue. All the internal organs are likewise pigmented; only the central nervous system remains unstained. In fact, the pathologic picture may range from the simplest cloudy swelling of the hepatic cells to complete necrosis, as seen in acute yellow atrophy.

Prior to 1847 it was the popular belief that bilirubin was formed in and excreted by the liver. Virchow noted that it was found in local hemorrhagic effusions and he, therefore, paved the way for our present conception of the formation and excretion of bilirubin. In 1913 McNee showed that bili-

rubin was formed by the cells of the reticulo-endothelial system. The liver merely excretes it. The larger part of the reticulo-endothelial cells is in the spleen and bone marrow; only a few of them, the Kupffer cells lining the sinusoids, are found in the liver. Mann removed the liver and all the abdominal organs of animals and still observed bilirubin in the blood. This led him to conclude that the bile pigment was produced chiefly in the bone marrow. Any increase in hemolysis will be followed by a corresponding increase in bilirubin. The blood stream carries bilirubin to the hepatic cells. It may be excreted by the cells; however, if obstruction exists it is returned to the blood, and jaundice is thus increased. If the bilirubin is passed through certain liver cells its character may be changed, and on this phase of the cycle depends the value of the van den Bergh reactions.

The formation of bile salts probably takes place in the liver parenchyma. It is possible that the salts may have some bearing on the symptoms in jaundice diseases.

Diagnosis

For all practical purposes, jaundice may be divided into three types: (1) the hemolytic, (2) the toxic or infectious (intrahepatic), and (3) the obstructive. The hemolytic type will be discussed only briefly in this paper.

In the intrahepatic group are included several pathologic conditions, as catarrhal jaundice, infectious or epidemic jaundice, Weil's disease, yellow fever, toxic jaundice from acute infectious diseases and drug poison, acute yellow atrophy, and different forms of cirrhosis of the liver. The obstructive group includes those cases in which the jaundice is caused by stones in the bile ducts, benign strictures, and malignant processes in the pancreas and bile ducts.

Symptoms. Pain is the most important single symptom in the obstructive type of jaundice produced by stones in the bile ducts. It occurs in at least 80 per cent of all cases and is a reliable diagnostic feature. Usually there is a history of previous attacks of pain of varying severity, occasionally accompanied by transitory jaundice, and chills and fever. Digestive disorders, as qualitative food dyspepsia, gaseous distention, and eructation, are often secondary symptoms.

Pain is not so characteristic of obstruction as a result of benign stricture, hemolytic, or intrahepatic jaundice. If the patient is beyond middle life and a palpable gallbladder is found, one may be reasonably certain of a neoplasm in the pancreas or a chronic pancreatitis. Unfortunately, a palpable gallbladder is a feature in less than 50 per cent of the cancers producing jaundice. One should consider a benign stricture of the ducts as the causative factor when jaundice is observed soon after cholecystectomy.

If an epidemic exists, and if the patient is a child or young adult, one may suspect a catarrhal type of jaundice.

Itching is a common and annoying symptom. It may be so distressing that sleep and rest are impossible. Often scratch marks may be seen over the entire body. The cause is unknown, although an increase of bile salts in the blood may be the responsible agent. It has been suggested that some detoxifying substance in the liver produces an anaphylactoid reaction and consequent skin irritation. Itching is not always present, nor does it necessarily correspond in severity to the degree of jaundice. It is never a symptom in the hemolytic type, and probably is more prevalent in the obstructive than in the intrahepatic type. The presence of pruritus, then, may be an aid in the differential diagnosis of the several kinds of jaundice.

The treatment of this troublesome condition has always been unsatisfactory. Calomel in small doses may be beneficial, but should not be followed by a laxative. Recently, the intravenous injection of sodium thiosulphate in 0.5 to 1 gram doses has been found to afford temporary relief from the itching. More recently, ergotamine tartrate has proved the most effective of all the drugs used. It may be taken by mouth or subcutaneously, and often the patient is relieved for several hours.

Diarrhea, frequently a complication in jaundice conditions, is difficult to control. This was exemplified lately in one of my cases. The patient was a man 74 years of age, who had a carcinoma of the head of the pancreas, a distended and palpable gallbladder, and a deep jaundice. For many weeks he had had from ten to fifteen bowel movements daily, which large doses of bismuth and paregoric had failed to control.

The diarrhea continued for several days after the bile was diverted back into the intestinal tract by an anastomosis of the gallbladder to the stomach. As the jaundice cleared, the bowel movements became normal in number and color.

The majority of jaundiced patients complain of loss of weight and strength. This symptom may be attributed to nutritional disturbances. It becomes progressively worse as the disease advances.

Physical Examination. This is a valuable but often indeterminate means of showing the type of jaundice present. The skin and sclerotics are yellow. An increased deposit of cholesterol at certain points may cause xanthomas to appear in the skin. The liver usually is palpable, frequently enlarged, and may be irregular or nodular. The gallbladder is visible and palpable in a small number of cases. Ascites may be present and, as a rule, is an unfavorable finding. In the opinion of some writers, ascites seldom develops when jaundice is caused by stones in the bile ducts, yet an increasing number of cases of common duct stones with associated jaundice and ascites are being reported, in which the patients recover.

Laboratory Aids. The duodenal drainage is helpful in determining the patency of the bile ducts. If bile is recovered from the duodenum it is certain the obstruction is not complete. Should an examination of the bile reveal the presence of calcium bilirubin crystals, calculus formation somewhere in the biliary tract may be suspected. The wisdom of employing duodenal drainage for therapeutic purposes is questionable.

A complete blood count will demonstrate the degree of anemia. This should be a routine procedure.

An icterus index or serum bilirubin test should be made at once and observed every few days subsequently during the period of study. The normal icterus index range is from 4 to 6. Many of my patients have an index of from 30 to 50; a few show more than 100. This test is a simple one and is easily and quickly made. It is based on the intensity of the color, rather than on the quantity of bilirubin in the blood. The van den Bergh test, when made by an expert technician, is, in my opinion, dependable and most valuable in distinguishing the types of jaundice.

Non-protein nitrogen and blood sugar determinations are desirable to show the condition of kidney function and carbohydrate metabolism. The coagulation time is usually long; it should be checked carefully from day to day. In jaundice, the amount of cholesterol in the blood is increased. For this reason, a quantitative estimation of cholesterol is useful.

The galactose tolerance test is important as a diagnostic measure in those cases of doubtful origin. This procedure will be discussed later at length.

Other laboratory aids may be employed, but for all practical purposes these will suffice.

X-ray. The x-ray is of little value, although a flat plate occasionally will show a stone shadow. No dye should be given the patient; its irritating effect may further weaken the already over-burdened liver cells. Sufficient work has been done to show that the dye does not enter the gallbladder in adequate concentration to produce a cholecystogram, and the meager information that may be gained by its use is not worth the risk entailed.

Treatment

Hemolytic Jaundice. Granting the condition to be hemolytic jaundice, splenectomy is the only satisfactory treatment. Clinically, patients are cured following operation, although certain abnormal blood changes still remain. The fragility of the red cells does not necessarily disappear, but in many instances it is considerably altered. Notable work has been done recently, especially by Reifenstein, Allen, and others, on the treatment of certain cases by liver extract. When splenectomy is not considered safe on account of the patient's condition, or surgery for some other reason is believed untimely, liver therapy is indicated. In the occasional case of common duct stones with jaundice and ascites, the present day treatment with diuretics, including the acid salts, to tide the patient over the ordeal of having the stones removed and the establishing of hepatic collateral circulation, enables the patient to recover and remain well.

Intrahepatic Jaundice. The intrahepatic group is a large one and covers a wide range of associated affections. When jaundice occurs in the course of an acute infectious process,

no especial treatment is required; it responds to the treatment for the primary disease. If cincophen or arsenic is being taken, the poisonous effect on the liver cells will often subside upon their withdrawal, and the cells will recover and resume normal function. Damage may be so severe, however, that residual low function may continue or a mild or severe form of cirrhosis may supervene.

Catarrhal jaundice is, as a rule, of short duration. The treatment is conservative and consists of restricted exercise, liberal quantities of fluids, particularly fruit juices, and a diet chiefly of carbohydrates. Strong purgatives should be avoided, but mild saline laxatives may be helpful.

Cholegogues are of doubtful efficacy. They are comparable to diuretics in nephritis: none of them has justified their use. Supportive measures, blood transfusions, and the administration of compounds of calcium have been beneficial, especially if obstruction has been a factor.

There is one group of middle-aged patients whose symptoms are a painless jaundice, mild anorexia, loss of weight and strength, and often a troublesome pruritus. In these the diagnosis and method of management present a difficult problem. The icterus index is high, perhaps up to 50 units or more, and the urine contains a great deal of bile. The stools are usually light but not completely clay-colored. Duodenal drainage will show bile entering the intestinal tract; the obstruction is not complete. The majority of these cases belong to the toxic or intrahepatic type.

It has been shown that the normal liver can metabolize as much as 40 grams of galactose in a five hour period. If the hepatic cells are acutely inflamed and swollen, as in toxic or intrahepatic jaundice, the metabolic function will be subnormal and some of the galactose will enter the general circulation and spill over into the urine. On the other hand, in obstructive jaundice (except in very late cases when the liver has been severely damaged), the liver cells still maintain their function of utilizing the galactose and little, if any of it, passes the liver and is excreted into the urine. It would seem, therefore, that the galactose tolerance test would be most valuable in differentiating some of these clinically difficult cases. It should also aid the surgeon in his decision as to whether the disease is one for surgical or medical management.

I have done an exploratory operation in a few cases for this type of intrahepatic jaundice and found no evidence of obstruction. The common duct was not enlarged and, when opened, the bile appeared normal. A T-tube was inserted into the duct in two cases. The bile flow was constant but scant for the first few days, but gradually became normal and the jaundice promptly cleared. These patients probably would have recovered just as well without surgery. I believe that almost complete rest, an increased amount of fluids, and a diet high in carbohydrates but restricted in protein is the only treatment necessary.

Obstructive Jaundice. Surgery offers the only hope of cure in obstructive conditions. In a large number of cases, however, the obstruction cannot be removed. In others, complications have developed through delay, making operative relief impossible.

The purpose of surgery is two-fold: (1) to return the bile back into the intestinal tract and (2) to relieve the obstruction. This may be accomplished in several ways. A stricture may be released and the duct repaired, the gallbladder or duct may be anastomosed to the stomach or duodenum to short-circuit the bile back into the bowel, or a stone may be removed from the hepatic or common duct.

The surgery of obstructive jaundice has always been considered extremely hazardous. This remains true today. Adequate preparation of the patient for operation, therefore, is of the utmost importance. The kidneys and liver are already damaged, and measures must be taken to protect the patient against the dangers of hemorrhage, which is always a factor during and following the operation.

Preliminary treatment should consist of rest and a high carbohydrate diet, fruit juices by mouth, and large quantities of fluids. In the more severe cases, glucose solution should be given intravenously or by venoclysis in quantities up to 3,000 or 4,000 c.c. daily. The intravenous administration of calcium for three or four days will shorten the coagulation time of the blood and reduce the tendency to hemorrhage. Usually the patient will show a marked improvement within four to six days. It is my custom to give a blood transfusion the day preceding operation and have a donor ready for a

second transfusion postoperatively if needed. If the patient does not improve or grows worse under these procedures, an operation probably will be disastrous and should be deferred. I should like to emphasize the fact that an operation on account of obstructive jaundice is never so urgent that a thorough preparation of the patient may be neglected.

Prognosis

We may now revert to some of our original questions relating to prognosis.

By carefully analyzing every case of jaundice, much of the existing confusion may be clarified. For all practical purposes, we may divide these patients into two general classes: (1) those who may be relieved by medical management, and (2) those who require surgical measures. In a large number we are able to decide whether or not the obstruction is intrahepatic or extrahepatic, and whether or not the ducts are patent. Intrahepatic jaundice will clear up spontaneously in many cases, and surgical interference will not be necessary. The prognosis in this group is fairly good.

In jaundice resulting from obstruction, the outcome will be determined largely by the cause. On the whole, the mortality in the group with stones in the ducts is approximately 10 per cent. If recovery takes place, the patient probably will remain well. On the other hand if the obstruction is caused by stricture, even though it is removed and the duct repaired, recurrence is likely and the prognosis is often unfavorable. In the majority of cases of chronic pancreatitis, in which swelling of the head of the pancreas produces obstruction, the outlook is more hopeful. These patients usually have no further trouble when the obstruction is relieved. Finally, when obstruction is caused by a neoplasm, the prognosis is always grave. Although many patients live several months and are quite comfortable following anastomosis of the gallbladder to the stomach, the malignancy will continue and the patient will gradually decline.

Summary

Looking at the whole subject in a broad sense, jaundice is a sign that should be regarded as of serious significance. As

previously stated, patients with the hemolytic type respond very well to treatment. The end results in cases of intrahepatic jaundice will depend largely on the cause and method of treatment. As to jaundice from obstruction, when we are more careful in the differential diagnosis and operate only when obstruction is thought to exist, and then only after a thorough preparation of the patient, we may expect more gratifying results and an appreciably lower mortality.

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ENTEROSTOMY

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THE title of this paper is intended to include any provisional diversion of the alimentary current situated anywhere along its course, including the stomach.

The usefulness of enterostomy depends chiefly on two factors: How it is done and when. Many of the benefits and possibilities of this surgical aid have been lost because of inadequate consideration of these two essentials. For many years I was painfully aware of the deficiencies of the Witzel operation. I regard the successful performance of a Witzel operation as the crucial test of any man's surgical skill. In 1931 I described an operation that I devised and which has continued to grow in favor and range of usefulness to the present moment. The illustrations will serve to elucidate the graphic description.

The portion of intestine chosen for the site of entry is grasped in a U-shaped forceps covered with rubber. A small incision is made into the lumen of the bowel at right angles to its long axis. A Pezzer catheter of appropriate size is introduced after being impaled upon a specially constructed stylet. One to two rows of purse-string sutures are carried around the opening while the stylet is still in situ. After the sutures are drawn tight the spring is released and the stylet is withdrawn, allowing the bulbous extremity of the catheter to expand and prevent its coming out. The catheter stem is brought out at the lower angle of the wound or a separate stab as may seem most appropriate.

It is astonishing to contemplate the range of usefulness of this operation. It can be adopted as a means of egress for the escape of gas and intestinal contents or the portal of entrance for fluid and nutrition adequate to meet the demands of the system, as well as for medication. The function of this utility varies with the situation of the tube. For instance if it is employed in the stomach (gastrostomy) its functions will be chiefly nutritional. If in the cecum, the tube facilitates the escape of intestinal contents and affords the opportunity

for giving enemas from above, which obviously enhance the efficiency of this measure and produces a more cleansing effect. If the situation is in the jejunum or ileum the range of accomplishment will include all the elements mentioned above in about equal proportion. One aid that the operation affords which is not generally recorded and one that I use extensively is in establishing an "internal hot water bag."

The enterostomy can be established as described in the cecum, or a plain catheter inserted through the appendix into the cecum and held in place by two sutures passed through

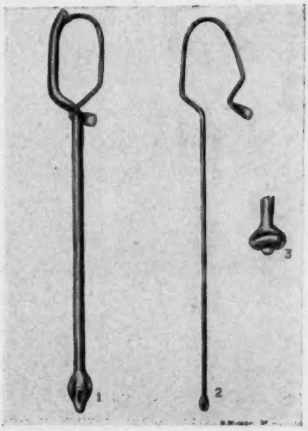

FIG. 1. (1) Catheter impaled on stylet ready for insertion.
(2) Specially modified stylet.
(3) Segment of catheter that had been cut and passed through the intestinal canal.

the appendix and catheter and the meso-appendix cut and ligated. In either event the colon can be filled with water at 120 degrees, and the catheter clamped to retain the fluid. If a long tedious abdominal operation is in prospect this provision will serve to supply heat and moisture during the operation and as long after as one desires to continue its use. If the meso-appendix is severed as described, the appendix will slough off in six days.

In operating on a ruptured appendix my routine is as follows: The appendix is severed between the rupture and the cecum, and the meso-appendix is cut and tied. The stump

is dilated with hemostatic forceps and a Pezzer catheter threaded on the stylet is inserted through into the cecum and retained by three rows of purse string sutures. Proper drainage is established in the peritoneal cavity and the wound closed. The catheter thus placed provides for the drainage of waste products, and when other avenues of approach are not available, for the introduction of fluids, food and drugs, especially purgatives, if desired. I am sure my mortality in

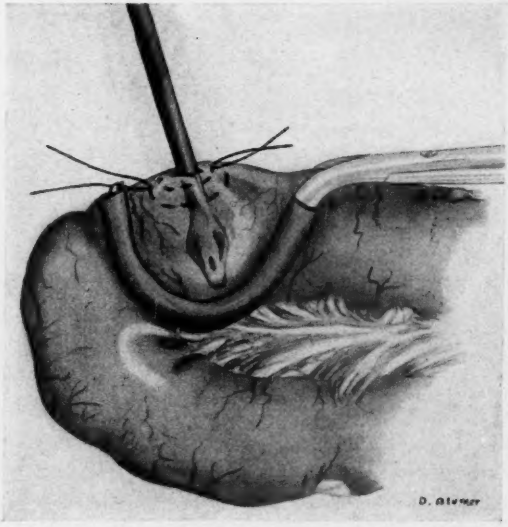

FIG. 2. Pezzer catheter inserted in segment of small bowel, showing appearance before stylet is removed and purse-string sutures tied.

this class of cases has been materially diminished since this measure has been routinely adopted.

I have often been asked how I get the Pezzer catheter out when its usefulness is over. The answer is, don't attempt to get it out, but cut off the stem flush with the abdominal wall and push the distal end into the intestinal canal. In about three days if the nurse watches carefully she will find it in the bed pan. A specimen is shown in the illustration which has made the descent in average time. In no case has the catheter ever produced any sign of obstruction. I mention this because such an exigency has been urged as an objection to its use.

The failure or success of enterostomy depends greatly upon when it is done. The operation rarely does any good when adopted as a secondary procedure. It should be on the program of every laparotomy and performed when it is evident that peritonitis of serious proportions has already occurred or surely will. The deterring influence in the past has been twofold. First, the popular procedure was difficult and not without its traumatic objections such as tearing the gut and

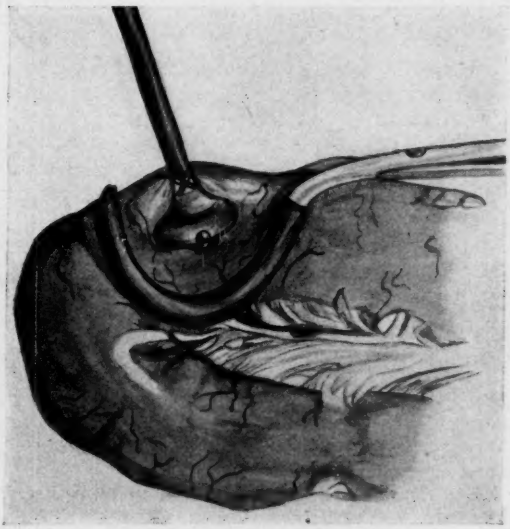

FIG. 3. Pezzer catheter after the stylet is removed and the purse-string sutures tied. The bulbous end of the catheter has expanded to its normal shape within the lumen of the gut.

leakage. The operation which I have devised reduces trauma to the minimum and is so simple it can be done rapidly and harmlessly. Second, the fear that fecal fistula will result: this has never occurred in my experience. The operation is indeed so completely devoid of morbidity that it can do no harm even if it is done though not needed. Therefore when in doubt, do the enterostomy. It may not accomplish all that one expects but it will enable the surgeon to do a lot of things he always thinks should be done and feels he would like to do.

An example of the importance of enterostomy as an opera-

tion per se is found in its use for the temporary relief of intestinal obstruction. Patients in the late stages of obstruction have often been reclaimed by this means. In practically all cases where there is obstruction over forty-eight hours old enterostomy should be done. Local anesthesia may be used and many times the resulting decompression of the bowel will cause a release of the obstruction. At least the patient's condition can be improved sufficiently to offer a safe risk for

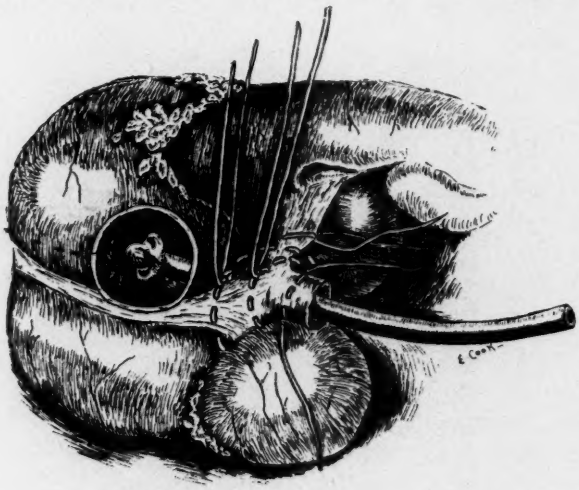

FIG. 4. Treatment of ruptured appendix:
The Pezzer catheter has been passed through the stump of the appendix into the cecum, and sutures are in place ready to be tied.
A window has been cut in the wall of the cecum to show the position of the head of the catheter.

a more radical operation. For patients in this class the treatment should always be supplemented by a 10 per cent glucose solution given by venoclysis and continued as long as the enterostomy is in force. As much as 180 grains of calcium gluconate should be given adults daily in the glucose solution. Enterostomy established on the oral side of an anastomosis will add greatly to its safety by releasing pressure of gas and fluid that may cause tension on the suture line.

Both results of enterostomy and indications for it now appearing in the current literature are based upon the older methods. Therefore they are not to be regarded as final or even

indicative of what may be expected now. With the improved procedure herein proposed there is sure to be a wider expansion of its application and more general appreciation of its possibilities. I have found that drainage of the alimentary canal is as much a factor of success in abdominal surgery as drainage of the peritoneal cavity. The efficiency of an enterostomy can be vastly increased by attaching a suction apparatus of the Wagensteen type to the enterostomy tube. I wish to

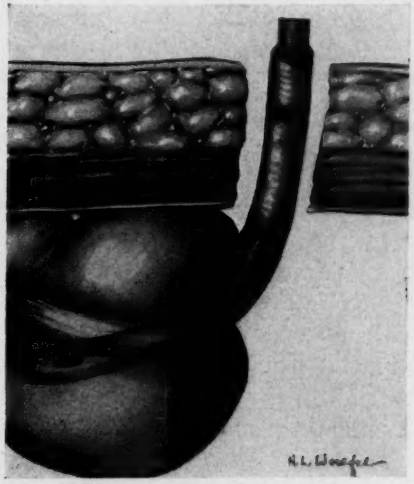

FIG. 5. Catheter passed through the lumen of the appendix to serve as a means of filling the large bowel with hot water to act as internal hot water bag, supplying heat and moisture to combat shock. The meso-appendix has been cut and tied, causing the appendix to drop off at the end of six days.

repeat for the sake of emphasis that results from enterostomy will depend upon how it is done and when.

The chief objection I have heard urged against enterostomy is to the effect that it drains only a limited segment of the bowel. Granted this may be true, the objection applies only to the old way of doing the operation. In my operation the catheter is not fastened in any way to the bowel or surrounding structure, which leaves it free to be advanced its full length in the lumen of the gut. This can be safely accomplished by the aid of the stylet I devised for the purpose. Also as already stated the suction apparatus acting continuously

enhances the prospect of extending the radius of its influence far beyond the usual territory.

It must be remembered that drainage is only one of the purposes of enterostomy. With a tube properly disposed one can introduce stimulating and nutritional substances with good and wholesome effect as long as the bowel retains its powers of absorption even to the least degree. I have found that fluid introduced under these circumstances should not exceed a rate of fifteen drops per minute and the temperature at which it is delivered in the bowel should be 100 degrees. To maintain this rule a thermos bottle should always be used as a reservoir instead of the irrigating cans that we are accustomed to see with hot water bags tied on them and light bulbs tied inside in a clumsy attempt to maintain the temperature. It should also be remembered that in flowing at a rate of fifteen drops per minute the fluid will lose about five degrees of heat to each foot in transit. If it is started from the bottle at 120 degrees and travels four feet it will arrive in the bowel at 100 degrees. This rate is based upon the use of the stethoscopic tubing which has a small lumen and very thick walls. If the enterostomy is situated in the colon or cecum, a colon tube can be inserted in the rectum where it is allowed to remain and through and through irrigation may be continuously maintained and the rate of flow increased to sixty drops a minute. The colon is thus both stimulated into the active expulsion of gas and thoroughly cleansed at the same time.

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SURGERY OF THE HEART

THE Aztec priests of ancient Mexico, Prescott tells us, developed a rapid and efficient technic for exposing the heart in the performance of more than a million human sacrifices. It is not unfitting that North America, the cradle of such gory, wholesale cardiac surgery, should within our lifetime have also been largely the cradle of humanitarian cardiac surgery. The first surgical attack on the heart was in the treatment of wounds, and it is still the most important phase of cardiac surgery. Beck has traced out the history of traumatic surgery into three periods: first, the period of mysticism, in which stab wounds were considered invariably fatal. According to Fischer, Hollerius (1498-1562) first advanced the idea that wounds of the heart might heal. Idonis Wolfe, in 1642, described the first healed wound of the heart. Fischer assembled 452 cases, only 10 per cent of which resulted in recovery. This period gave way in 1882 to the experimental period when Block successfully sutured a wound in the heart of a rabbit. Fourteen years later, Rehn performed the first completely successful suture of a heart wound in man, and thus ushered in the modern era.

Stab wounds of the heart are rather common in the South. It may be that our warm climate (in the offing those Atlantans

who recall New Year's Day may be heard to mutter "Oh yeah!") has measurably warmed our blood: it is much more probable that our large colored population with its thin veneer of civilization is responsible. The wealth of such material has been well handled by our surgeons. Dr. Matas in 1909 described his technic for suture of heart wounds with a dramatic vividness that cannot be surpassed, and now the successful repair of stab wounds of the heart is not uncommon. It is reported that no golfers have ever yet compared their scores with keener zest than two young professors of surgery compare their scores in cardiorrhaphy when they meet. Moreover, the automobile and the good roads we now have throughout the South make it possible to get these patients quickly to a competent surgeon.

One of the lesser fruits of this interesting development has been that alert surgeons have called on interns and internists for electrocardiographic studies. In this way knowledge has been gained as to the precise location of occlusion of the coronary arteries. Previously experimental ligations of the coronary arteries at different sites had been done in an attempt to localize the occlusion, but the differences in anatomy between the dog and the man gave questionable results. Of course a world of work had also been done in the study of the heart in which coronary occlusion had occurred during life and electrocardiograms had been taken. This method of study was not entirely satisfactory either because sometimes the exact time of the occlusion could not be determined and often other myocardial lesions were present. In other words, a spurting coronary has provided justifiable experimental study of the human animal.

It is surprising too to learn how well the heart tolerates foreign bodies. A bullet or the tip of a blade has not infrequently been carried for years with few or no symptoms. In such cases the wise surgeon will let well enough alone, for the risk of removal is about 20 per cent.

A few years ago attempts were made to operate on the heart valves themselves. It is true that two patients survived such operations by several years with apparent improvement. It is not surprising that such operations were not successful since at best they could but hope to convert a stenosed valve into an

incompetent one. Graham has suggested that the benefit derived by those two patients was perhaps caused entirely by the decompression of the heart. The subject of decompression of the heart is too big a one for discussion here. Decompression and the treatment of pericarditis must be saved for another time.

One of the most recent, as well as of the most spectacular developments in cardiac surgery has been in the grafting of a pectoral muscle to the myocardium in the treatment of coronary disease. Hardly a physician in the country failed to see the extraordinary newspaper publicity that was accorded Claude Beck when he got away with his first operation of this sort in Cleveland last spring. Dr. Beck himself presented his case before the American Heart Association in June. He had performed experiments on more than 600 dogs before attempting anything on the human. He had found out in this way that after artificial occlusion of the blood supply to the myocardium it was possible to supply a new vascular bed through grafting a pectoral muscle to the heart. He selected for his first patient a man totally disabled with angina and so far the patient has been much improved. This operation is obviously not one that will become an every-day affair.

It is too early to say whether the Beck operation will become the treatment of choice in managing intractable coronary disease. Several times these pages have been devoted to total thyroidectomy and those who come to New Orleans will have an opportunity of hearing Dr. Kerr discuss the results of superior cervical sympathectomy.

—J. GASTON GAY, M. D.

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STILL LOOKING FORWARD

THE SOUTHERN SURGEON appeared quarterly for the first three years of its existence. In 1935 the time appeared ripe to increase the frequency of publication to six times a year. This was done and more than 130 pages of reading matter were added. Though the subscription price has not been increased—and goodness knows it was low to start with—the management is proud to announce that there are considerably more funds in the exchequer than at the same time last year. The Managing Editor is an obstinate sort of a cuss and he will not permit the journal even to approach the red!

This enviable state of affairs is, of course, largely due to the loyalty of our advertisers. The Bard-Parker Company and Messrs. Davis and Geck joined the list of our friends during the first year and have not missed a number since. The first company soon doubled its space and the second has just followed suite. Messrs. Johnson and Johnson took the back cover with the second issue of the SURGEON, being the second advertiser to sign up, and they have been so regular that the SURGEON does not look natural when that space is occupied by another firm. The C. V. Mosby Company took a page during the second year and has kept it faithfully.

The Winthrop Chemical Company came across with a page in 1933 and Messrs. E. R. Squibb and Sons rallied round in 1934 with the same amount of space. We hope never to miss them from our pages again. The Clay-Adams Company, the Otto K. Becker Company and the G. and C. Merriam Company joined the ranks last year. That Webster's Dictionary the Merriam people put out, by the way, is a swell book: it is the last word in our editorial offices. The Ciba Company has just enrolled among the elect for the year 1936.

There must be a reason for the continuing confidence of our advertising friends. Probably it is because of the reader-interest in this journal, which is owned by its readers and is not run for a profit. We are showing our appreciation of our advertisers' financial backing by changing to a white cover in order better to show up their illustrations on it. And we would remind potential advertisers that, though we are a bit

snooty about whom we will admit to our circle of friends, (that is to say, we have had to decline a very large number of advertisements because their products could not meet the requirements of our American Medical Association) we are quite willing to expand the circle. Once they get in, we should warn them, it is not likely that they will ever want to get out again.

We started this editorial with the intention of inviting all and sundry to the New Orleans Assembly. It would be hard to find a more attractive surgical program anywhere—just look it over! But the abler pens of President Haggard and President-elect Miller have been exercised to invite you to come. We must remind you, however, that these papers will appear in these pages during the next twelve months. But the Scientific Exhibits, which we expect to be richer, more varied and more valuable than ever before, must be seen to be appreciated. Come and hear the speakers and cross examine them at the Round Table Luncheons and then read their contributions in their final form in these pages!

We must also remind the surgeons of the South that there will always be room for original papers in addition to those read before the Assembly. As Dr. Haggard said at the time the SURGEON was founded, it is largely designed to be "a stimulus to the young men to perfect their work, to record it, and to make the additional collateral studies that are so important in the preparation of medical papers and case reports and are of such paramount value to the man who studies them."

DOCTOR MATAS

President of the International Society of Surgery

AT the recent tri-ennial meeting of the International Society of Surgery in Cairo, Dr. Rudolph Matas was elected President. The next assembly will be held in Vienna.

TO THE DOCTORS OF THE SOUTHEASTERN STATES:

We salute you! We invite you to New Orleans to the seventh annual meeting of The Southeastern Surgical Congress on March 9, 10 and 11.

An outstanding program has been prepared with great care. It will be given by a number of the outstanding surgeons of America. They are university men; they are teachers of great repute; they are hospital chiefs, directors of large clinics and men of the moment. Messages of practical and clinical value will be given by men of distinction.

Diagnosis in all of its practicability, the application of the newer methods, the perfection of the older and classic procedures will be retold. The delicate discrimination of disease by modern diagnostic methods; utilization of the old, the well tried, the dependable signs and symptoms will be accentuated. Clinicians of large and ripe experience will impart their philosophy, their rare judgment in discernment of disease entities and in superior practice. Men from all the Southern States will assemble for mutual interchange of opinion. They will come for a period of concentrated study. It will be a real postgraduate course compressed in a few days of intensive instruction.

The camaraderie that only professional men possess in its highest significance will make the meeting one of long remembered pleasure and profit.

The sub-tropical city of New Orleans, renowned for its hospitality no less than its charm, will greet you.

The famed medical faculties of this delightful city will place its large and varied clinical material at the disposal of the speakers. No city beckons to the visitor with more allure —no medical traditions are more revered—no visit will ever be forgotten. Make this your first visit or enjoy it again as you did of yore. The welcome will be Southern. Your instruction will be superb. Your inspiration will be renewed and your entertainment will be regal.

Come.

—WM. D. HAGGARD, M. D.,
President.

New Orleans Welcomes You

New Orleans welcomes the Southeastern Surgical Congress to "America's Most Interesting City," the "Medical Center of the South," and for the lighter mood, "The City Sans Souci" or "Care Forgot." We hope that each one who comes will find all three characterizations not a mite overdrawn, but are at least certain that in versatile New Orleans each one will find some angle of interest to strike a responsive chord in his heartstrings. If you have been here before, and I am sure the great majority has at one time or another visited New Orleans, you will know just what interests you most and can immediately broaden your appreciation and enjoyment of that particular phase. But if you have never been to the Crescent City, we eagerly await the opportunity to make the 1936 *meeting of the Southeastern Surgical Congress one of the high lights in your memory.*

The program of the Congress promises to be one of the best, if not the best, yet offered. The clinics to be presented in the historic settings of Tulane University and Charity Hospital will be unusually interesting and instructive. The Tulane University Medical School last year celebrated the One Hundredth Anniversary of its founding, and by its progressive conservatism has preserved and enriched the finest ideals of medical tradition which make New Orleans a medical center of the South. Charity Hospital is almost as old as the city itself and the story of its services to the indigent poor of the State and to the advancement of medical science is known throughout the world.

For the moments of diversion outside the sessions of the Congress, New Orleans offers varied entertainment: A stroll through the Vieux Carre, rich in the romantic history of the city's past; a visit to the spots made famous by Napoleon, Lafayette, Gen. Jackson, Jean Lafitte the pirate, and others too numerous to mention; a glimpse of the beautiful patios of the Quarter, the old houses with gallery railings of "iron lace," the Pontalba Buildings, America's first apartment houses, the old French Market where Indians traded before the white man came; and when you are tired, a pause to rest at one of the old Creole restaurants and to try some of the dishes, for which their cuisines are famous, crayfish bisque, oysters a la Rockefeller, shrimp remoulade, pompano en papillotte, crepe suzette. When sated with the Old World charm of the French Quarter, cross Canal Street, the dividing line between the old city and the new, and you will find that the charm of New Orleans does not rest solely upon her past. The parks, the avenues, the gardens, the modern harbor, and just outside the city, the new bridge across the Mississippi, invite your inspection.

We welcome you to New Orleans and the Southeastern Surgical Congress. We hope your sojourn with us will be not only instructive and profitable, but happy and enjoyable.

—C. JEFF MILLER, M. D.,
President-Elect.

BOOK REVIEWS

The Editors of THE SOUTHERN SURGEON *will at all times welcome new books in the field of surgery and will acknowledge their receipt in these pages. The Editors do not, however, agree to review all books that have been submitted without solicitation.*

THE PARATHYROIDS IN HEALTH AND DISEASE. *By* DAVID H. SHELLING, B. Sc., M. D., The Johns Hopkins University and Hospital, Baltimore. 335 pages with 26 illustrations. Price, $5.00. St. Louis: The C. V. Mosby Company, 1935.

The parathyroids first described in 1860 by Sandstrom and rediscovered by Gley in 1885 attracted little attention for more than twenty years. The discovery of the relation of the nervous manifestations of parathyroidectomy to the levels of serum calcium by MacCallum and Voegtlin in 1908 started an avalanche of literature. This enormous inchoate mass has been authoritatively outlined by Dr. Shelling whose own investigations have enabled him to evaluate the contributions of others. He has produced a monograph that should appeal both to the clinician and to the investigator, though the latter may have occasion frequently to consult the bibliography appended for more detailed knowledge in his particular field.

One of the most interesting practical points emphasized in this book is that, in the treatment of tetany due to the accidental removal the parathyroid glands, milk is of no benefit. The reviewer (and he suspects many others) had believed that, since in such cases tetany results from too little calcium in the blood, a food as rich in calcium as milk and as easily assimilable would be ideal therapy. Shelling points out, however, that milk is also very rich in phosphorus and so the effect of its calcium is neutralized.

The neurologist, the otologist, the laryngologist, the thyroid surgeon, the orthopedist, the roentgenologist, the obstetrician, the pediatrician, the abdominal surgeon, the gastro-enterologist, the endocrinologist and the internist at least will find valuable information concisely given in this book. It should at least be within the reach of all such. Last August the reviewer would have given an awful lot for a copy of this book!

THE MEDICAL TREATMENT OF GALLBLADDER DISEASE. *By* MARTIN E. REHFUSS, M. D., Clinical Professor of Medicine, Jefferson Medical College, Philadelphia, and GUY M. NELSON, M. D., Instructor of Medicine at Jefferson Medical College, Philadelphia. 465 pages and 113 illustrations. Price, $5.50. Philadelphia and London: W. B. Saunders Company, 1935.

It is to be hoped that our readers will not consider inappropriate for these pages the review of a book entitled "The Medical Treatment of Gallbladder Diseases." After all, the true surgeon is more interested in doing what is best for his patient than in displaying his own dexterity. This book then,

may be recommended with enthusiasm to the surgeons in the same way that books pointing out the good results of surgical intervention should be carefully studied by men who do not wield the knife. And this is said in spite of the fact that one may not completely agree with the authors in every detail.

After a competent consideration of the anatomy and physiology of the gallbladder there is a splendid chapter on the history of a gallbladder case. The authors lay great emphasis on the role of focal infection in the etiology of cholecystic disease. Duodenal intubation takes up 36 pages and cholecystography about the same amount. The chapter on differential diagnosis is a classic. The question of medical treatment begins with discussion of the metabolic problem and diet.

A few years ago some men were proclaiming that as soon as the diagnosis of a diseased gallbladder could be made, the offending organ should be immediately removed lest it in turn damage the liver. Rehfuss and Nelson are very much more conservative and "deny emphatically that surgery is a cure-all for gallbladder disease or that it necessarily roots out or even controls the causative factor." Without defending the gallbladder containing stones, they feel that most diseased gallbladders should be treated by medical measures and not operated upon unless these fail. Even the most blood-thirsty surgeon will admit that some patients offer too great a risk and that others are just too plain ornery to submit to operation, and should therefore be glad to read what can be done for such persons by more conservative measures.

WEBSTER'S NEW INTERNATIONAL DICTIONARY OF THE ENGLISH LANGUAGE. Second edition, Unabridged. 3350 pages. Springfield, Mass.: G. & C. Merriam Company, 1936.

Covering every line of thought in all fields of endeavor, the second edition of Webster's New International Dictionary is truly a new creation and as indispensable to the professional man, regardless of the profession, as to the layman. It is the incomparable result of the labors of 200 foremost authorities and is as informative and accurate as 18 volumes of the ordinary encyclopedia. We consider it the supreme authority and the greatest collection of correct information ever compiled. L. H. C. H.

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Benign and Malignant Lesions of the Breast

DR. ALAN C. WOODS, Baltimore
The Ocular Manifestations of Intracranial Tumor

A number of these surgeons will also hold Clinics, and the Round Table Discussions which have proved such a popular feature of the last two Assemblies will be continued.

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